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ABSTRACT

The University of Liverpool's Evaluation and Assessment Unit (LEAU) organized a national conference on the growth, development, and potential of the National Curriculum. The National Curriculum consists of 10 subjects, each defined by attainment targets, programs of study, and attainment levels. These subjects are to be drawn up by working groups set up by the Secretary of State and are subject to consultation by the National Curriculum Council (NCC). The National Curriculum is to be introduced over a number of years, beginning in September 1989. Contributors at the conference discussed the principles of the National Curriculum, its programs of study, assessment issues, and training implications. Seven conference papers. The papers are: (1) "An N.C.C. View" (P. Watkins); (2) "A View from S.E.A.C." (H. Steedman); (3) "Assessment and the Curriculum" (P. Black); (4) "Views on Assessment at Age 7" (W. Harlen); (5) "'INSET, Professional Development and a Shared Value System'" (K. Evans); (6) "Disconnecting Knowledge and Understanding from Human Values: A Critique of National Curriculum Development" (J. Elliott); and (7) "Checking the Focus: An Overview of the Conference" (R. Derricott). (SLD)

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The National Curriculum- *Moving into Focus?*

Papers from the LEAU National Conference April 1989

Contributors:

Paul Black
John Elliott
Wynne Harlen
Keith Evans
Peter Watkins
Hilary Steedman
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The National Curriculum- *Moving into Focus?*

University of Liverpool
LEAU National Conference

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Introduction

The University of Liverpool's Evaluation and Assessment Unit [LEAU] organised a national conference which was held at the Adelphi Hotel, Liverpool, on the 14th and 15th of April, 1989. The conference title was 'The National Curriculum:Moving into Focus?' The hesitancy implicit in the title speaks volumes for the edgy way in which educators, commentators on the educational scene, parents and even the progenitors of the National Curriculum were at that time perceiving its growth, development and potential. However there was also a sense in that which had been foreign was becoming familiar: even if, at that date, there was no practical experience of the National Curriculum in action. The contributors were individually and collectively well placed to provide authoritative accounts of and reflective insights into the principles of the National Curriculum, the programmes of study, assessment issues and training implications. In doing so they conveyed the variety of perspectives and opinions which were then present at all levels of involvement in this education revolution;'Reform' is perhaps too anodyne a word.

Since April the pace of change seems unabated and the publication of a set of conference papers now needs to have a better criterion than one of mere historical record. The rationale is provided by the opportunities taken by many of the conference contributors to go beyond the reiteration of official positions and to consider issues of a fundamental character as well as those whose aim was explicitly to challenge what was emerging as received opinion. There is much in these papers to stir up active debate wherever and whenever the National Curriculum is discussed. We see this publication as an important contribution to that process.

David Thomas

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LEAU thanks the following for contributions to the conference and this publication.

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'An N.C.C. View'

Peter Watkins

Deputy Chief Executive
National Curriculum Council

INTRODUCTION

It is less than two years since I first spoke about National Curriculum. It was in June 1987 to a conference organised by the Association for the Study of Curriculum. I began by saying that the difficulty in talking about National Curriculum was that there was no such thing; I could only speak about the platonic National Curriculum, the great National Curriculum in the sky, an idea which had been around for about ten years but which had not yet been embodied in specific proposals. It had figured in the educational writing of people like Denis Lawton and John White. It had been suggested by James Callaghan in the Ruskin speech and in papers from DES and HMI. It had been announced by the Secretary of State, Kenneth Baker, in speeches to the North of England Education Conference at Rotherham and to the Society of Education Officers at Scarborough in January 1987. A National Curriculum had appeared in the manifesto of all three political parties (as they then were) at the General Election in May 1987. But we still did not know what it would look like.

It was only in July 1987 with the publication of the now famous red Consultation Document that we learnt of the ten subjects of the National Curriculum, of the intention to assess all pupils at 7, 11, 14 and 16, to create the National Curriculum Council (NCC) and the School Examinations and Assessment Council (SEAC).

I say all this by way of introduction because it is important to realise how recent the National Curriculum is. We need to remember too that no school has yet operated the National Curriculum, that we have no idea what it will feel like and that not until 1992 will the first reported assessment take place and then only for 7 year olds.

And yet the National Curriculum represents potentially the greatest single planned change in the curriculum since state education began 120 years ago.

What I want to say this afternoon falls into three parts. I want:

1. to reflect on the ten subject model;
2. to raise issues which need further consideration;
3. and to suggest the potential of the National Curriculum for improving education offered to pupils.

THE FRAMEWORK

Let me first remind you of the main features of the legislation.

1. The National Curriculum consists of ten subjects each defined by Attainment Targets, Programmes of Study and ten attainment levels. These are drawn up by Working Groups set up by the Secretary of State and are the subject of consultation conducted by the National Curriculum Council. They are set out in a Statutory Order for each subject. The first Orders, those for Science and Mathematics, were published in March 1989.

2. Assessment and testing will take place four times in a pupil's career at or near the end of each of four Key Stages, when the majority of pupils are 7, 11, 14, and 16. There will be two forms of assessment:

   continuous assessment by teachers which will be moderated;

   Standard Assessment Tasks drawn up externally and administered by SEAC.

3. The Act is explicit about what the Secretary of State may not do. He may **not:** specify the time to be allocated to subjects nor require subject titles to appear on the timetable of any school. He may not specify teaching methods or text books.

4. The National Curriculum will be introduced over a number of years. In particular there will be two stages.

   (a) From September 1989 all the subjects of the National Curriculum must be taught "for a reasonable time" to all pupils in Key Stages 1 to 3 (up to the age of 14). A similar requirement for Key Stage 4 (years 10 and 11) applies from September 1990 but only to the three core subjects.

Implementation in the remaining foundation subjects raises, as we shall see later, altogether more complex problems at that stage.

(b) The introduction of Attainment Targets and Programmes of Study will also start in September 1989 but only in Mathematics, Science and English for those entering Key Stage 1 at the age of 5 and in Mathematics and Science for those entering Key Stage 3 at the age of 11. For others there will be a phased introduction of subjects on the National Curriculum in each case at the beginning of Key Stages so that it will be well into the 1990s before all pupils are subject to the Attainment Targets and Programmes of Study of all National Curriculum subjects and even longer before assessment is fully in place. Only then shall we be able to begin to evaluate fully its impact on the educational experience of individual pupils and of schools as a whole.

THE NATIONAL CURRICULUM MODEL

I turn then to consider first the ten subject model. When the consultation document was published criticism centred on, though it was not confined to, two facets: the description of the curriculum as ten subjects invariable through the years of compulsory schooling (except for a Modern Foreign Language which was only obligatory in Key Stages 3 and 4) and the requirement to assess at 7, 11, 14 and 16.

Subjects, it was argued, had been rejected as an organising device in primary schools and found inadequate in secondary schools, where cross curricular elements had assumed greater importance in recent years. The prescribed ten subjects would involve the down-grading or even elimination of other subjects which had figured in option systems, given pupils "ownership" of their programme and made a valuable contribution to the curriculum. Subjects were derived from university disciplines and it would be a retrograde step to return to them when modern curriculum thinking had been moving towards areas of learning and experience.

I want to suggest that what is emerging is not a 10 subject curriculum in the usually understood sense but a new, more sophisticated and far more defensible definition of subjects. The subject labels of the National Curriculum will constitute something broader and yet at the same time have greater definition for their purpose than has been the case in the past.

The subjects of the National Curriculum:

1. relate to each other;
2. may be divided into profile components;
3. are defined through Attainment Targets and Programmes of Study;
4. facilitate progression through levels of attainment;
5. are vehicles for cross-curricular elements.

1. **Relate to each other.** Subjects have in the past been taught in secondary schools largely by subject specialists, for the most part in isolation from one another. The remit of the first five working groups requires each to consider its relation to other subjects. When all the working parties have reported and all subjects have been defined in Statutory Orders, it seems to me that NCC will want to look at how well the matrix works and perhaps to suggest changes. (Annex A).

2. Divided into profile **components.** We do not yet know how useful profile components will turn out to be. The profile components suggested by the English Working Group (Speaking and Listening, Reading and Writing) are a useful categorisation of the subject; those in Mathematics and Science less evidently so, whilst the Design and Technology Working Group has described only one profile component. (Annex B).

3. **Defined through Attainment Targets and Programmes of Study.** Never before have school subjects been defined. Even the subject criteria of GCSE fall short of the specification provided in the Statutory Orders in Mathematics and Science. Nonetheless as I have already said they do not prescribe content or teaching methods.

4. **Facilitate progression through levels of attainment.** In some subjects at least real progression has been elusive. In my own subject, History, change from year to year has too often been a change of content rather than a progression of skills or in the use of concepts. Still less have we cracked the problem of progression between primary and secondary school where it has been claimed that sometimes pupils have stood still or even regressed during their first year in secondary school. The provision of Statements of Attainment at ten levels will surely facilitate progression.

5. **Provide a vehicle for cross curricular elements.** This is a larger issue than I can tackle adequately here. May I list some of the cross curricular elements which it is generally argued should be included in the curriculum of all pupils. (Annex C). There are three ways in which these may be included in the curriculum.

   (a) Some will **permeate** all subjects. Examples are literacy, numeracy, oracy, and information technology.

   (b) Some will **appear in the Attainment Targets and Programmes of Study of some subjects**

of the National Curriculum at some or all Key Stages. Examples are aspects of Health Education which may appear in Science, Media Studies which is likely to appear in English, Art or Music, and International and European Understanding which will appear in History.

(c) There may however be some which cannot adequately be represented under any subject heading. It may be necessary for schools to organise their own courses or even in due course for NCC to recommend an additional element to the National Curriculum; whether a further subject or free-standing attainment targets. NCC's Whole Curriculum Committee has been wrestling with this problem. It has recently set up five Task Groups: Careers Education, Environmental Education, Economic Awareness, Health Education and Citizenship (law related, political education, parenthood and family life).

We complained, then, prematurely when we argued that a National Curriculum defined in subjects was ipso facto diminished and anachronistic. The subject based curriculum as defined has the potential to provide most of the elements we believe should be included in a curriculum for all pupils. Having said that, I do not want to underestimate the work involved in exploring fully the scope which subjects as organising devices allow us. They cannnot simply be handed over to a subject specialist; they require collaboration with departments and overall curriculum planning of a high order.

Our fears of testing at 7, 11, 14 and 16 have proved similarly to be premature and exaggerated. The Task Group on Assessment sees assessment chiefly, though not exclusively, as formative and diagnostic, a tool for learning, and the Secretary of State has accepted its recommendations. It is not my place to say more since Professor Paul Black is a later speaker.

ISSUES NEEDING FURTHER CONSIDERATION

The National Curriculum is not in operation in a single school. There will be no trialling in primary or secondary schools of the National Curriculum as a whole nor of its component parts defined in the Statutory Orders. Inevitably, therefore, it will require in the early years careful monitoring and evaluation. NCC's remit includes working in collaboration with SEAC, the Department of Education and Science and HMI to "gather, collect, analyse and assess information on the delivery of the curriculum and its results".

It is not too early to begin to ask the questions which arise out of the reports of the early Working Groups and the first Statutory Orders, even if it is too early to expect answers. I do so under two headings.

1 **Reconciling the present curriculum with the new model.**

At **Key Stage 3**, Years 7, 8 and 9, to use NCC's recommended nomenclature, there will be few problems. Most schools already offer the subjects of the National Curriculum to all their pupils at this stage. The gradual introduction of Attainment Targets, Programmes of Study and levels should be a smooth transition.

At **Key Stages 1 and 2** it will be necessary to reconcile the integrated curriculum of most primary schools with one defined by law through subjects. I do not under-estimate the work involved in the reconciliation but I do not believe the problem will turn out to be as difficult as it may seem. A good integrated primary curriculum already ensures the representation of all areas of the National Curriculum though not necessarily in the right proportions. Science, and even more Technology, will present problems. According to HMI, Science occupies only about 5% of curriculum time in primary schools with the Physical Sciences particularly under-represented. Technology is in most schools even scarcer. There will be problems of equipment and teacher confidence to be overcome.

At **Key Stage 4** there are a host of complex questions to be addressed. I shall raise some of them.

(a) What, first of all, are the consequences of teaching ten subjects of the National Curriculum and Religious Education, providing Careers Education and a PSE programme on the time allocation for GCSE subjects? We have not heard much recently of 70% of time for National Curriculum subjects (28 out of 40 periods). Beneath the surface much work is going on to model possible pupil programmes for years 10 and 11.

(b) How will schools offer option subjects, such as a second foreign language, examined RE or Economics. How will they rate when pupils know that opting not to take GCSE History or Geography does not mean dropping the subject but studying it with a reduced time allocation and acquiring a qualification whose currency is uncertain? Or will it be possible to reach level 7 say and drop the subject after year 10?

(c) Can PSE and Careers Education be provided using Attainment Targets and Programmes of Study in one or more foundation subjects? If they are taught through the foundation subjects, will coherence be lost? If not, how do we find time for an additional course and what will pupil motivation be like if it alone is unassessed and not part of the National Curriculum?

(d) Will there be two sorts of assessment at 16+ - GCSE and SATs at the end of Key Stage 4?

What relation will they bear to each other and how will employers and others understand and rate the two systems?

2. **Implementing the new model.**

My second set of issues arises at the micro level, from looking at the Attainment Targets, Programmes of Study and levels of attainment in more detail.

(a) Will levels of attainment in each of the ten subjects be mutually consistent or will some subjects apparently be harder than others? Why for example, does Mathematics provide Programmes of Study in Key Stage 2 to level 6 and at Key Stage 3 to level 8, whilst in Science Key Stage 2 stops at level 5 and Key Stage 3 at level 7? Does level 7 in Mathematics mean the same as level 7 in Science or English?

(b) Are the clusters of Attainment Targets within a given level consistent?

(c) Are the Statements of Attainment always hierarchical? Could you, for example, achieve level 6 without having achieved level 5 first?

(d) Does children's learning conform to the TGAT straight line gradient?

(e) By concentrating on specific Attainment Targets, might teachers endanger the integrity of the subject area as a whole?

(f) What happens to an able child towards the end of a Key Stage, particularly Key Stage 2 when a change of school may be imminent? Will the primary school want early transfer or enhanced staffing, or the secondary school feel obliged to set its new entrants in some subjects?

(g) Are levels discrete learning entities or are they artificial boundaries with no pedagogical significance, or a mixture of the two?

(h) Is there a smooth gradation through the levels? Some have maintained that there is a leap between level 5 and level 6 in Science. Level 6 appears to require a level of abstract thought as well as complex equipment not normally available in primary schools.

I cite these questions not because I believe they are insoluble but because I believe they will be raised and indeed are already being raised. Let me add that far from regretting the questions, I believe the National Curriculum is raising a whole series of vital but difficult questions about how children learn which we have been able to avoid facing. We have assumed inadequacies in children's general or specific ability or their motivation. We shall now have a huge amount of data from which to draw in analysing the process of learning.

POTENTIAL FOR IMPROVING THE CURRICULUM

Let me finally suggest to you four ways in which the National Curriculum has the potential to improve the experience of individual pupils and the effectiveness of schools.

1. **It offers a means of communication.** We have, I believe, as a profession lacked a means of communication with each other, with our pupils, with parents and with the wider community of employers and others. On parents' evenings, for example, the diagnosis we have to offer and the remedies we provide have rarely matched in technical sophistication those available, for example, to the medical or legal professions. The National Curriculum provides in my view a professional and pedagogical language through Attainment Targets, Programmes of Study and level of attainment through which we can in future diagnose, prescribe and above all communicate.

2. **It provides a way of establishing the right relationship between curriculum and assessment.** We have complained in the past that the curriculum has been driven by examinations; our educational aims have been distorted by the 11+ or by 'O' level. Even GCSE could be seen as an attempt to change the curriculum through first changing examinations. The National Curriculum will precede and determine the means of assessing and testing it. Standard Assessment Tasks can only be put in place when Attainment Targets and Programmes of Study have been defined and implemented.

3. **It specifies a curriculum for all.** It is often argued that schools have met the needs of some pupils at the expense of others. The grammar schools most adequately served the high flyer, those aspiring to higher education, rather than the C stream. Some people have alleged that comprehensive schools were less successful with the ablest and those with learning difficulties and were best with the average. Others would say that the curriculum was biased towards boys at the expense of girls, towards middle class children at the expense of working class children, to those from the ethnic majority at the expense of those from ethnic minorities.

   The National Curriculum will not **solve** any of these problems. It is, however, an entitlement of all pupils. If some are inadequately served, it will be evident. Governors, parents and LEAs will be able to pinpoint problems and ask the profession to devise solutions.

4. **It supplies a means of curriculum development.** Curriculum development as a coherent systematic attempt to change the curriculum in English schools for the better has been around

since the late 1950s. There have been successes - Nuffield Sciences, the School Mathematics Project, the Schools Council History Project among them. It has however left large areas of the curriculum untouched. In too many schools the content and process of the curriculum have been unchanged for a generation or even more. Much work has been done to analyse why curriculum development is liable to dilution, corruption or abandonment.

Just as GCSE has brought about curriculum development in years 10 and 11, so the National Curriculum can be expected to be a powerful means of curriculum development throughout the years of compulsory schooling and by capillary attraction before 5 and after 16. We shall all be wrestling together with the same Attainment Targets and Programmes of Study. Effort will no longer be diffused; curriculum development will no longer be the preserve of the innovators of the profession who are the most promotable and the most likely to move on, leaving dust settling on their new curriculum materials.

CONCLUSION

The initial reaction of the teaching profession to the National Curriculum was one of disbelief, hostility and suspicion. I believe this has changed. A majority now recognise the potential advantage in having a framework defined by statute. Doubts centre now on speed of implementation, on resources on, the scale of INSET required and on some of the questions which I have raised this afternoon.

I want to finish with a credo. I believe the National Curriculum has the potential to improve pupils' experience of learning, teachers' experience of teaching, parents' understanding of the process of education, and in so doing to achieve the Government's objective of raising standards overall. I believe the Secretary of State when he said in a speech in Manchester in September 1987 "(the National Curriculum) must preserve and develop one of the greatest strengths of our schools - the competence, commitment and creativity of our teachers".

ANNEX A

Working Group Remits

Working group	Links with other subjects	Themes or skills to be developed
Mathematics	Science, technology, art, craft, geography, history, economics	Economic understanding, consumer education, information technology
Science	Mathematics, CDT, home economics, technology, astronomy, earth sciences	Health and safety education, computing, information technology, industrial applications of science, use and misuse of energy
English	Drama, classical literature, expressive arts	Media studies, word processing, use of libraries and reference books
Design & Technology	Science, art, home economics, business studies	Economic awareness, environmental awareness, health and safety education
History	Mathematics, information technology, statistics, economics, English, Welsh, science, geography and technology, art, music, foreign languages, classical studies	

ANNEX B

Profile Components in some subjects of the National Curriculum

SUBJECT	PROFILE COMPONENT	ATTAINMENT TARGET
English	Speaking and listening	1
	Reading	2
	Writing	3
Mathematics	Knowledge, skills, and understanding of:	
	Number, Algebra & Measures	8
	Shape & Space & handling data	6
Science	Exploration of Science	1
	Knowledge and understanding	16
Technology	Design & technological capability	1

ANNEX C

Cross Curricular Themes

Competences

- Literacy
- Numeracy
- Oracy
- Information Technology

Dimensions

- Multi-cultural
- Gender equality
- Special education needs

Elements

- Careers education
- Consumer education
- Economic and industrial awareness
- Environmental awareness
- Health and safety education
- International and European understanding
- Law-related education
- Media studies
- Parenthood and family life
- Political education

'A View from S.E.A.C.'

Hilary Steedman

Senior Research Officer
National Institute of Economic and Social Research

From the start, the idea of a National Curriculum for England and Wales was conceived of as a process which would not only state publicly a common entitlement to education but one which would yield information of value to parents, teachers and children. Once the National Curriculum was in place, it was thought, this information would not be couched in the traditional language of assessment which was too readily perceived as a permanent value judgement on an individual's personal worth. Instead, assessment would chart progress against stated attainment targets, arranged as far as possible hierarchically, and the language of assessment would relate to markers along the path and not to characteristics of the individual child. This view was strongly held by members of Professor Black's Task Group and underpinned their recommendations for assessment at the designated Key Stages of 7, 11, 14 and 16. TGAT recommended a framework for assessment that would allow progression from level to level to be clear to parents, teachers and children and which would provide information for schools and individual teachers to plan programmes of work for pupils and build on progress achieved without needless repetition or yawning gaps in work covered.

TGAT's responsibilities, and TGAT itself, ended with the publication of its framework of recommendations. At the time, the work entrusted to TGAT appeared to me to be a daunting and complex task. My own view now, from my position as the only TGAT member on the Schools Examination and Assessment Council, is that TGAT had the easy task to perform. The difficult part was handed over to SEAC, with the brief to set in motion the preparations for Standard Assessment Tasks at Key Stage I, almost before the Council itself was officially in being.

Let me say at this point, that I thoroughly applauded the sense of urgency that pervaded the work connected with National Curriculum and Assessment. I well recall hearing in pre-National Curriculum meeting a very senior DES official advise that it would take at least ten years work before a national system of assessment could begin to be put in place. My own view, arising from eight years spent studying and comparing the functioning of European education and vocational training systems, was that, as a country, we could not afford to wait any time at all before taking steps to establish national standards and encouraging all pupils to move as far as possible through the programmes of study. There is now much evidence from a variety of sources to suggest that our European and other competitors, such as Japan and Korea, are more successful than we are in motivating the lower half of the ability range and in keeping them in education or training long enough for useful and durable education attainments to be acquired. Even starting this September, it will be eleven years before the first cohort of pupils has fully benefited from the National curriculum. A sense of urgency is, in my view, justified and necessary.

What then are the difficulties encountered in trying to turn the TGAT framework into something that will happen in the schools in 1992? The main problem as I see it is the complexity and sheer numbers of attainment targets suggested by each working group for its own subject area. Starting from the point of view of desirable objectives, the working parties may have provided a workable curriculum, but have not, in my view, provided an assessable curriculum. From my own experience in primary classrooms, I am well aware of the heavy burden that will be placed on a single class teacher in an infant or junior school by the assessment, the noting of outcomes and the recording of outcomes of 30 children, each in terms of some 50 attainment targets and several hundred statements of attainment. How is it to be done without massively disrupting normal classroom work and placing a fearful burden of internal assessment, test administration, marking, recording and aggregation of marks on a single teacher? TGAT wanted testing at seven which would be non-disruptive and simple to administer.

The burgeoning of attainment targets for the subject areas so far mapped out by the working parties makes achieving simple forms of assessment more difficult. SEAC is fortunate to have three groups of

highly experienced professionals working on the delicate task of reconciling the demands of reliability and validity of assessment across the whole range of the emerging curriculum with the equally important requirements that this assessment be user-friendly and not over-burden the teacher. The work of these groups is advancing fast, based on development in schools and in conjunction with classroom teachers of the Standard Assessment Tasks which will form part of assessment at Key Stage I. Nevertheless, the development groups can only advise on what is technically feasible. SEAC must make the final decision on the shape of assessment at Key Stage I (and very soon at subsequent stages). My own view is that the Tasks should be short and simple to administer and should not attempt to assess all the attainment targets of the National Curriculum. They should concentrate on ensuring that indispensable skills necessary for future progress have been acquired. Responsibility for ensuring that other curricular targets have been met should rest with the class teacher.

I want to leave the topic of Assessment at Key Stages 1, 2, 3....i.e. the assessment of some 2 million pupils annually, because, incredible as it may seem, this forms only a part of SEAC's work. At present, a great deal of SEAC's time is taken up, not by plans for assessing 2 million pupils annually, but by the endless complexities of policing the GCSE and A-level examinations. I do not intend to dwell on this aspect of SEAC's work except to state that the effort and expertise currently devoted to developing, submitting, amending, resubmitting, reresubmitting and finally approving GCSE syllabuses (and they number several thousand), is surely misplaced in view of the urgent need to ensure that we put in place the best possible system of assessment at the earlier Key Stages, when, unlike at age 16 , there is still time to act upon the results. The national curriculum makes the detailed syllabus development of GCSE largely redundant in the subjects of the national curriculum and adjustments will need to be made accordingly. This is another of SEAC's tasks that is neither easy nor straightforward.
Nevertheless, it is difficult to see how sufficient expertise and resources can be released for other assessment areas unless the rationalisation of GCSE can be tackled swiftly. SEAC also needs to question whether GCSE is the most suitable form of assessment for all pupils at age 16. If nationally examined and validated, to give it parity of esteem with GCSE, BTEC First qualifications could assess the national curriculum at 16 in a number of areas, providing a more sympathetic vehicle for evaluating TVEI elements and helping those pupils whose motivation benefits from courses closely related to the world of work.

I mentioned earlier that my main concern now for a number of years has been vocational training provision in Europe and the role such provision plays in developing human resources and in encouraging higher levels of productivity throughout the economy. Any close observer of this scene cannot but be struck by the fact that, in Europe, many more young people between the ages of 16-19 are choosing to continue to acquire education and practical skills in a systematic manner than is the case in England and Wales. There are many reasons for this difference, but one stands out: that is, the anarchic and labyrinthine complexity of our vocational qualifications. Instead of a single nationally valid qualification for each level of technical or vocational professionalism as in France and Germany, we have a host of unconnected certificates and diplomas: we know not how many. Impossible to motivate young people to embark on a course of vocational training and education when the path is so unclear and the "wrong" choice at 16 could make a subsequent change of direction (including university entrance) enormously difficult. Impossible to interest employers in qualifications whose very nature depends on the college course attended and which change their name so frequently (I wonder whether everyone here could give a snappy definition of a BTEC Level III?) National Council for Vocational Qualifications, officially entrusted with oversight of the whole vocational qualifications system has charged without much thought down the blind alleys of competence-based testing and employer-led qualifications, neither of which offer the sort of broad and balanced vocational training with possibilities for progression which young people are entitled to expect.

What should SEAC's role be in relation to the vital area of providing a framework for 16-19 year olds? Who, if not SEAC, will guarantee opportunities for progression within, to and from high quality vocational and technical qualifications similar to those enjoyed by other young Europeans? SEAC is at present consulting widely on the development of A and AS levels. Should AS levels be confined to the traditional academic subjects or can they combine elements of vocational competence (say an RSA typing certificate in a Business Studies AS course) with broader educational objectives? SEAC has the opportunity to encourage the growth of a national examination which will serve a far greater proportion of young people than the highly academic A level route has been able to do. SEAC serves the whole population aged between 5 and 16. It makes no sense for it to confine itself thereafter to the top twenty per cent and leave the rest of our young people to struggle through an uncharted swamp.

'Assessment and the Curriculum'

Professor Paul Black

Chairman,
Task Group on Assessment and Testing

INTRODUCTION

What I want to say is an agony in eight fits; covering a variety of issues within the extensive territory of assessment and curriculum under the new national system. I start this with two underlying assumptions.

The first is that I believe that the conspiracy theory of history explains far less than the cock-up theory. This is relevant to us because a lot of what is going on currently is part of a struggle by many people, of different persuasions and with different prejudices, trying to get it right with very little time to explore either common difficulties or points of disagreement.

The second view is we are at the beginning of a long road, trying to implement some very radical changes with little previous experience to guide us. It is going to take a long time to achieve an optimum implementation, even if all were to agree on criteria for optimising.

THE TGAT PRINCIPLES

I want to start by restating two main principles on which the TGAT reports were based. The first was that assessment is central and not marginal; it is an inherent part of teaching and learning in providing the feed-back that learners and teachers need. So a national assessment system must reflect and support this function within the teaching and learning system That is a fine principle. One of its consequences is that the framework TGAT provided could not be merely an assessment framework, it had to reflect a curriculum framework. TGAT had to work so desperately quickly in its first phase (August to December 1988) because the Mathematics and Science Working Groups needed its output as guidance for part of their work. The structure of Profile Components and Levels was a TGAT invention which combined with the existing ideas of Attainment Targets and Programmes of Study, has now become a structure for the curriculum. Part of the reason for this curriculum influence of TGAT was the lack of any other over-arching framework for the National Curriculum. Whether this extension of TGAT influence was helpful or harmful is something that may be debated for a very long time.

The second principle is that assessment is central because it provides the language and the terminologies for communication between teachers and pupils, teachers and parents, teachers with colleagues and teachers with governors and the public outside. If you are providing a 'language' you are also providing a tool for thinking so it is very important to be critical about whether that language is right.

PROFILE COMPONENTS

TGAT introduced the concept of Profile Components, and it is now possible to illustrate the concept with examples. Thus for the first two key stages in English, it is proposed that there should be three Profile Components: Speaking and Listening, Reading and Writing. The aim was to have a small number of key headings which would reflect the main areas of educational aims for a subject. The idea is that for the purposes of reporting it is better to talk about attainments under a small number of separate headings, rather than to have either a single heading which would give too little detail, or a large number of headings which could become counter-productive in communication to a variety of audiences. The question in English is therefore whether these three Profile Components are the right ones; do they give you the right separate emphasises, with the right counterpoint or interplay to reflect on education in English? Whilst I am not an expert in this subject, it does seem to me that, for talking about 'language use', these seem to be right, although there is clearly room to consider arguments about how they can do justice to other aspects, for example in the study of literature.

A second example is Science, where I would like to regard the two Profile Components of the final version as a paired interaction. The first of these two is the Knowledge and Understanding component which is a very big piece of prescription - 16 different Attainment Targets - occupying 60 to 70 pages in the Orders, whereas the second component Exploring

Science is relatively brief taking only 8 to 9 pages. One can regard Knowledge and Understanding as providing the analytic knowledge base, whilst Exploring Science is the synthetic base, where the Knowledge and Skills are put together and used. I see the Science curriculum as a dialogue between these two aspects together and used. Exploring Science involves learning to work as a scientist, experiencing what it is like to do science, using science for every day and other purposes, deploying the skills and processes. Knowledge and Understanding involves building the underlying knowledge and conceptual structure which is both the product of, and the basis for, exploring. Any piece of scientific work, whether it is for the citizen or the scientist, is a dialogue, an interplay, between those two, and I think the existence of these two, and the way they are prescribed, will facilitate that dialogue.

The DES, following NCC advice, has also proposed (in Circular 6/89 which accompanies the Orders) percentage weightings between these two components as follows:

	Key Stages			
	1	2	3	4
Exploring Science	50	45	35	30
Knowledge and Understanding of Science	50	55	65	70

It is important here to note what these are NOT meant to advise. They are **not** relative percentages which are to be added together to give a total mark for science. The whole point of Profile Components is that important information is lost in doing that. Neither are they a prescription which says at Key Stage 1 (for example) that half the time is to be spent teaching Knowledge and Understanding, and half the time teaching Exploring Science. Indeed in the primary stages, it is essential to avoid such separation and to engage pupils in investigative/exploratory work in the course of which they build up ideas and skills about measurement, observation, making hypotheses, (all these are set out in the Profile Component on Exploring Science) but in which they are at the same time exploring phenomena which help, through their hypotheses and testing to build up their knowledge and understanding of chosen concepts. So the teaching will be designed to serve these purposes jointly.

These percentages are rather general planning guides to make sure that the teaching is well chosen to suit a balance of purposes. The necessity for working to such a planning guide in preparing practical investigative work was illustrated for me by a research investigation into a local authority curriculum development: in the work proposed for Primary Schools, every single project was about 'making and doing', whilst every single post-11 project was about 'investigating'. Thus there was a fundamental shift of aim from one phase to the next, but enquiry into the reason for this revealed that it was not an intended effect, it simply arose from the separate backgrounds, experiences and assumptions of the teachers who had written materials separately for the two phases. There was no overall planning strategy for balancing the various styles and aims of the open-ended activity. The Knowledge and Understanding and Exploring Science components are **planning guides** to help ensure that such defects in balance do not occur. They are also guides to assessing. A teacher looking at pupils' achievements in the classroom ought to be looking both at whether they are building up the relevant Knowledge and Understanding and at how well they are building up their skills and strategies for Exploration. Thus, these are planning guides and reporting guides, they are not a prescription for separate teaching. I believe that they do justice to what science ought to be about.

Many people have been concerned about the change, from the four Profile Components recommended by the Science Working Group, to the two which were recommended by the NCC and accepted as the basis for the Science Order. I do not accept that this change represented a severe loss, whereby good educational aims were damaged by bureaucratic interference. There were quite serious reasons for changing from four to two. The one concerned statements about the social and other wider implication of science. It was thought these would be better worked into Profile Component on Knowledge and Understanding than kept separately. It is clearly a matter for debate whether this is a better way to express the importance of such issues. It is not the case that they have been removed - there are many relevant statements within the Attainment Target Statements of the Order. It should also be noted that in the programmes of study, there are whole paragraphs, at each key Stage, about the application of science, including such statements as:-

> "They should consider the benefits and drawbacks of applying scientific and technological ideas to themselves, industry, the environment and the community."
>
> "They should begin to make personal decisions and judgements based on their scientific knowledge of issues concerning personal health and well-being, safety and the care of the environment."
>
> "Through this study, they should begin to understand how science shapes and influences the quality of their lives."

Programmes of Study are part of the Orders so these statements show a clear requirement for schools to pay serious attention to this area of concern. It may

be of interest to note that the argument about whether such issues should be expressed on a separate Attainment Target (or Targets) comprising a separate Profile Component was affected by the difficulty of formulating level statements, with sufficient precision, in isolation from the context of the Knowledge and Understanding targets.

The other lost Profile Components was the one about Communication. Elements reflecting the importance of Communication are to be found throughout the final Attainment Targets, particularly in Attainment Target 1. The importance of Communication is also reflected in the Programmes of Study; there is a whole paragraph about it in the introduction to each of the separate programmes for each Key Stage.These various specifications draw attention to the need to give pupils the opportunity to extend their use of conventions and symbols, to read actively, to take increasing responsibility for selecting the resources on which they draw, to express their ideas by various means, to respond to those of others and to record their work. Thus there is emphasis upon communication throughout. The question is not whether communication is an important part of science education but whether it should be a separate Profile Component **in Science**.

This leads to consideration of the broader implications of such decisions. The numbers and character of separate Profile Components will have important implications, both for Primary Education and for Cross-Curriculum issues generally. In the Primary stages, if there are to be 3 or 4 Profile Components in each of 10 Foundation subjects then there will eventually be 30 or 40 altogether. If Primary teachers have to assess 40 Profile Components, these teachers may well collapse under the strain. The ideal for the primary curriculum would be a small number of basic, or generic, Profile Components, particularly for Key Stage 1, and the question would be how to relate them to the larger numbers needed for later Key Stages. What TGAT proposed was that this could be done either by elaboration to make them more distinct, or by splitting them between different subjects at a later stage, or by addition adding new ones. Thus the curriculum could be seen as a coherent whole developing into specialist subjects through an evolving structure of Profile Components. One consequence could be that some of the Components in separate subjects would derive from earlier common cross-curriculuar ones. Another implication was that the number of Components could be kept small by having components that served 'across the curriculum'. It is going to be very difficult to achieve this overall picture, because of the way in which different subject groups are working, one after the other, in a time series. It would be much easier to achieve coherent plans if they were all working in parallel, but for other reasons this is not happening. One of the important priorities for revision of the National Curriculum, will be to attempt to achieve the overview when all the subject proposals are in place if a few years time.

Thus it should be clear that if it had been decided to put Communication in Science as a separate Profile Component at all Key Stages, which is what the Science Working Group proposed, there could have been Communication in Science at age 7, Communication in Geography at age 7, Communication in History at age 7 and so on. That cannot be the way to deal with Communication in the curriculum. In my view, it should be a Profile Component that cuts across the subject boundaries, centred in English, but working within, and drawing evidence from the teaching in many subjects, in the spirit of 'Language across the Curriculum'.

LEVELS

As for Profile Components, the implementation of the TGAT proposals on level statements has exposed some of the limitations of the recommendations. The starting point here is TGAT's straight line graph showing a progression, from level 2 at age 7, through one level every two years for the average pupil. That is a rather coarse grained specification. Some have objected to it on the grounds that it assumes,and drives us to implement, a linear model of learning. Those who make that objection have not reached Level 4 in Mathematics, since the TGAT report's straight-line graph is no more than the pictorial equivalent of the statement "one level every two years". The confusion may arise because the ten levels look like a linear scale - but there is no sense in which it is more than an ordinal scale, no sense in which level six is twice level three, no sense, even, in which (level 6 - level 5) = (level 3 - level 2). It would have been better if it had been labelled with letter grades (but there could have been confusion with the GCSE letter grades).

If curriculum targets have to be specified, than a framework for specification has to be set up. The framework ought to reflect the notion of progression and it ought to allow the implementation of a criterion-referenced approach. These were the underlying needs that the system of levels was designed to meet. It is very ambitious to say, as TGAT did, that the level statements should set out, comprehensively, a set of aims in the form of a progression across the whole of primary and secondary schooling. I believe we are now trying to realise this ambition, but given the radical and novel demands that it makes it will take a long time to achieve it in a consistent and satisfactory manner.

A lot of the ideas developed by the Science and Mathematics Groups had to be changed part way through their work because of the constraint of meeting the TGAT framework when it emerged. Fitting into a

system of 10 levels was one of the most demanding constraints and it is interesting now to look at the way the level idea has been put into practice. I shall explore this by quoting several examples. The first is from the Mathematics Attainment Target Number 2 "Number". The first three levels are as follows:-

LEVEL 1

- count, read, write and order numbers to at least 10; know that the size of a set is given by the last number in the count.
- understand the conservation of number.

LEVEL 2

- read, write and order numbers to at least 100; use the knowledge that the tens-digit indicates the number of tens.
- understand the meaning of 'a half' and 'a quarter'.

LEVEL 3

- read, write and order numbers to at least 1000; use the knowledge that the position of a digit indicates its value.
- use decimal notation as the conventional way of recording in money.
- appreciate the meaning of negative whole numbers in familiar contexts.

These statements have a logical hierarchy, in the place value statements from levels 1 to 3, and follow a learning hierarchy, in starting with specific and concrete examples of fractions (Level 2) and decimals (Level 3) leading to more general achievements in these topics to later levels. In addition, at some stages, wholly new concepts are introduced (e.g. negative numbers in Level 3). Some of these sequences are based on research evidence of children's learning mathematics. Thus, the professionals were trying to specify a system of progression using the best evidence available to them. This illustrates that considerable background work ought to go into formulating such statements.

The same effort in 'Reading' has produced a different style of output, as the following extracts form the Draft Order for Key Stage 1 may illustrate:

LEVEL 1

- Begin talk about the content of stories, or information in non-fiction books.

LEVEL 2

- Describe what has happened in a story and predict what will happen next.
- Listen and respond to stories and poems, expressing opinions informed by what has been read.

LEVEL 3

- Continue to listen attentively to stories, showing an ability to recall significant details and to talk about setting, plot and characters.
- Demonstrate, in talking about stories and poems, that they are beginning to use inference, deduction and previous readings experience to find and appreciate meanings which are beyond the literal.
- Bring to their writing and discussion about stories some understanding of the way stories are structured.
- Devise a clear set of reasoned questions in order to select and use appropriate information sources and reference books from the class and school library.

This shows a model of progression in which a consistent thread is developed through increasing depth and sophistication. The third example is from Attainment Target 15 of the Knowledge and Understanding Component in Science: it is concerned with Light.

LEVEL 4

- know that we see objects because light is scattered off them and into our eyes
- know that light travels in straight lines and use this to explain the shapes and sizes of shadows.

LEVEL 5

- understand how light is reflected.

LEVEL 6

- understand how prisms and lenses refract and disperse light.
- be able to give an account of the structure and function of the eye.
- understand the principles of the common defects of sight and their correction.

LEVEL 7

- be able to describe and use the wave model of the nature of electromagnetic radiation.
- know that there are many types of electromagnetic radiation, that they are important in everyday life and be able to describe some of their applications.
- be able to explain how some optical devices work, for example, simple camera, projector and optical fibre.

Some elements here represent a linked logical thread for development e.g. the second statement in Level 4, the Level 5 statements and the last statement in

Level 7 build up and use the ideas of ray optics. Others are more subtly based e.g. the first statement in Level 4 exposes a need that most elementary tests on light ignore - because they take the idea to be self-evident: research on children's understanding has shown that it is not so and that careful work is needed to establish the idea. It is however a pre-requisite for much later work - e.g. the last two statements in Level 6. Finally, the first two statements at Level 7 show the introduction of a completely new idea which does not build on previous knowledge. Most of the Science Attainment Targets show such a mixture of developmental threads of various types with some completely new ideas starting only at intermediate or higher levels.

An interesting variant is shown in statements from Attainment Target 10, on Forces, as follows:-

LEVEL 9

- understand and apply the mathematical relationship between force, mass and acceleration.
- understand the difference between mass and weight, and between potential and kinetic energy.

LEVEL 10

- be able to recognise the interrelatedness of the ideas given in Level 9 and apply them quantitatively in new situations.

The Science Attainment Target 1, which is the whole of Profile Component 1 on Exploring Science, has rather different characteristics. Some of the statements in it are about separate and specific skills. The following selection shows one of several such strands: this one is concerned with recording and communication of results:-

LEVEL 2

- List and Collate Observation.

LEVEL 4

- Record results by appropriate means, such as the construction of simple tables, bar charts, line graphs.

LEVEL 5

- Make written statements of the patterns derived from the data obtained from various sources.

LEVEL 7

- Accurately use and interpret scientific nomenclature, symbol and conventions in communicating findings.

This set is an example of extension of the range and sophistication of recording techniques. However, other statements relate to a more synthetic and reflective approach. One, from Level 5 of Attainment Target 17 on The Nature of Science, also shows the cross-linking between separate Targets.

AT 17

LEVEL 5

- Be able to demonstrate that different interpretations of the experimental knowledge that they have collected are possible.

This will be quite new for many science teachers, calling attention as it does both to the need to reflect on results of experiments and to the need to take alternative interpretations seriously. However throughout Attainment Target 1 itself is a strand concerned with strategies of experimental investigation. The following extracts serve to illustrate this strand:-

LEVEL 2

- Ask questions and suggest ideas of the "how" "why" and "What will happen if" variety.

LEVEL 4

- Plan an investigation where the plan indicates that the relevant variables have been identified and others controlled.

LEVEL 7

- Plan design and safely carry out an entire investigation drawing on their scientific understanding at this level, to test a hypothesis in which they:

  -identify and manipulate two continuous independent variables and control other variables.....

The specifications made in this area in the Science Working Group report were inadequate because they lacked the clarity and detail to express a coherent model of progression, whether to guide teaching or assessment.

This particular target had to be reconstructed by the NCC, drawing on the extensive evidence and experience of the APU Science teams. Their problem in the areas of component skills was comparatively easy wherever adequate evidence of the varieties of pupil performance was available. In the area of strategy, illustrated by the last extract above, the task was more complex. This is partly because the focus here is holistic and synthetic rather than analytic and must depend on comprehensive judgements - which are more readily established by case law than by abstract legal specification. One aspect of this problem can be illustrated by the following extract

from one feature of a working group report:-

> ... pupils' attainments should be assessed in terms of their ability to
>
> Low Levels - persevere with a task
>
> High Levels - persevere with the task until it is complete.

This clearly will not do, and illustrates an area in which the NCC had difficulty decisions to make, and extra work to do, on recommendations which groups, working under enormous pressures of time, could not always complete properly. It will not do because whether or not it is reasonable to expect completion of a task depends entirely on the nature of the task. Thus, in setting out levels concerned with success in tackling an exploration task as a whole, Attainment Target 1 has to specify the nature of the task: the Level 4 statement refers to the variable structure, whilst the Level 7 statement specifies "two continuous independent variables". This last phrase requires explanation. An investigation task is easier if it concerns a discrete variable (compare this paper towel with that one) harder if it is about a continuous variable (find out how the depth of tea in the tea-urn affects the flow from the tap) since in the latter case ways to control and measure this variable have to be found. A task is also harder when two such variables can act together (find out how temperature **and** acidity affect the rate of dissolving of a given substance) since a more sophisticated design has to be thought out in the planning. It is very difficult to express such considerations in brief legal statements and the complex phrasing of the statements reflects this difficulty. Substantial guidance will be needed to help interpretation (which the NCC will issue as part of its non-statutory guidance to all schools).

The variety of these examples illustrates how the general framework of levels has been used to serve a variety of needs, differing both between subjects and between Profile Components within a subject. The question that follows is whether the framework is a helpful means for setting out targets in teaching and learning. It is certainly hard to claim that the task cannot be done, for if it is claimed that Levels cannot work on a scale as coarse as one set every two years, then it is hard to see how teaching in this aspect of a subject can be designed or evaluated at all. It is important to have flexibility in the way progression is expressed - there is clearly a need for different modes of description in the light of different educational aims. In one of the TGAT Supplementary Reports there is an account of a dialogue with subject experts in which the experts were asked whether the system of Profile Components and levels could be put into operation in a helpful way in their various subject areas. Their general response was positive. They reported that in some cases it reflected the trend of recent progress in their subjects, and that the feasibility was clear provided that wide flexibility was allowed in the way progression could be specified. That does not get rid of the difficulties; these remain, but our task now is to struggle with them. The issue is how that struggle can succeed, and whether it is about an arbitrary imposition of an unhelpful system or whether it can be creative in exploring our structures for curriculum, assessment and communication.

IMPLICATIONS FOR TEACHING

For the teacher, it is fairly evident that the Orders give planning guides but do not give a prescription of how to teach. They can be regarded as a kit of parts. The teacher has to assemble these to make a curriculum. There is a commitment within the new reforms to avoid specifying teaching methods and this has led to withdrawal of anything which might seem to be giving direct prescription. However the Orders are not a complete kit of parts - they do not provide enough for a complete plan. Schools and LEA's have to make plans which set the parts into a wider perspective. Nevertheless if the requirements are so extensive that they overload the system, there may be no room for any wider perspective to operate.

The Key Stages will be important. Programmes of Study are set out in terms of Key Stages, and the national assessment requirements at 7, 11, 14 and 16 also set and give weight to the end points of these stages. Thus I presume and foresee that the Key Stage will become the curriculum planning unit. It will not matter how teachers work through the targets, or how they group targets together and span over levels in a piece of teaching, but teachers will have to bring their pupils to a definite overall achievement at the end of a Key Stage for by that time they will be under some pressure to have covered all the Attainment Targets required, to as high a level as possible for each pupil.

IMPLICATIONS FOR ASSESSMENT

Given the gaps between the National Assessment of 2, 4, 3 and 2 years respectively for the key stages, and given that these numbers of years are quite substantial, it seems doubtful that **National** assessment on its own could be formative in its function. Indeed it cannot be so on its own. What will be formative is what teachers do in their own assessment. What is central to formative assessment is teachers' practice week by week and year by year. Seen in this perspective National Assessment will be very light overlay on that process. What does matter is whether Profile Components and Attainment Targets and Levels can be used as a frequent formative guide to the learning of pupils. Teachers with varying degrees of acuteness, use feedback from assessment as a formative guide already. What is required is a shift into criterion-referenced assessment, and so on into using a set of levels as guiding steps, and into generating and recording information in a new

way to reflect these changes. The important question about the levels and targets is whether they will become useful as frameworks and guides for teachers to develop formative assessment, to generate useful feedback information and to act upon it. Teachers will require very substantial support in such development. The TGAT report said very clearly that there was need for support for teachers to develop their own assessments. My regret is that there is not, as yet, much sign that such support is being planned at national level. It is being provided at LEA level although it needs to be made a more urgent and higher priority. SEAC may in the immediate short-term have to give priority to Standard Assessment Tasks, but there is far more to assessment within the new scheme than this. In particular there can be little formative value in generating information on four occasions only if this output is not linked to more frequent and formative use in teaching and learning.

This leads to the issue of the use of assessment information. One of the important uses of information about children's achievement is of course when they cross boundaries between schools. The obvious boundary is the primary-secondary one. It will be several years before pupils reach the age of 11 having gone through the National Curriculum and Assessment in Key Stages 1 and 2. However, when they do children, from different feeder primary schools will enter a secondary school carrying evidence of the levels that they are at in the various Profile Components, and all this information will be on the same basis whatever their primary school. How are secondary schools going to use such information? They will not be able to ignore (or will they?) the fact that their pupils will now have a more uniform set of experiences, about which they will have more uniformly calibrated information about their levels of achievements than ever before. Will better information about pupils' progression be related to greater curriculum differentiation? You will remember the 7-year gap which was given prominence in the Cockcroft Report. Roughly it meant that in an average mixed ability class of 10 year olds the range of attainments in mathematics covered a span equivalent to that covered in 7 years of progress by the average pupil. What can teachers do about this? Mathematics teachers who have been aware of it have been striving to respond: one way has been to individualise learning as in the ILEA SMILE and the Kent KMP projects. In these pupils can be slotted in at different levels with good diagnostics to fit them to the appropriate starting points. That has some unsatisfactory features - it affects the social cohesion of the class, breaks down communication and must mean that the teacher is mainly a manager, having only one minute per period per individual pupil, during which time he or she can only give superficial messages to a pupil (as shown in the ORACLE project on primary classrooms). Some are now trying to achieve better combination, of good diagnostics to slot children into different levels for individual and small group work on concepts, together with group work on explorations and problem solving in which the whole class can work together. Similar problems may arise in other subjects if good informative assessment exposes comparable differences in the progress of different pupils: the new Levels should provide the basis for deriving substantial evidence of this type.

A system of criterion-referenced levels has already been put into action in the GASP (Graded Assessment in Science) Project. Here pupils work through a series of criterion-referenced levels, and schools work with a system of internal and external moderated assessment administered and accredited by an examination group (LEAG). It is a more intensive system than the TGAT one, having 15 levels in the 5 secondary years. Thus pupils are assessed two or three times a year. They build up by attaining levels in sequence moving on from one to the next. The SEAC has already approved the scheme so that pupils can "cash in" their level grades for a GCSE certificate, without any external examinations, at the end of their school courses. This scheme exerts pressure on schools to spend more time on assessing and recording than they used to do, at the expense of teaching time. However enthusiasm is high because teachers find that the scheme motivates pupils.

IMPLICATIONS FOR PUPILS

Known criteria and explicit system of short-term reward, as in the GASP schemes, put something on the table to be shared between pupils and teachers. The short-term and explicit targets are liked by pupils - they know what they are supposed to achieve and they receive reward, of real long-term value, for achieving it before moving on. That seems to evoke enhanced energy and commitment from pupils. Can similar advantages be gained with the new national curriculum? It can be one of the advantages of an explicit curriculum, that it facilitates sharing with the pupils. Pupils and teachers may then be more clearly working together. Research has shown that there are surprising and damaging discrepancies between the perception of teacher and of pupils on the nature of the learning aims in the learning tasks. Better understanding between teachers and pupils is thus an important requirement, and could be one of the benefits of a national curriculum implemented with formative assessment. Another related benefit could be that pupils would take more responsibility for their own learning. It would be possible to enhance pupils' commitment if they were more involved in the process through negotiation. This is the language of the Records of Achievement movement, which could provide a broader framework within which the cognitive element of the national curriculum could be contained. If I were allowed now to make one change to the TGAT report it would be to include a fully

argued section on the role and involvement of pupils in assessment.

SAT'S AND MODERATION

SATs are about confidence and trust. There are two audiences for assessment results, an external audience and an internal audience. There is a continual tension between the different needs of these two. Those outside cannot rely on internal assessment on its own because it is too subjective in its standards which can vary from teacher to teacher and from school to school. Machinery for achieving closer understanding and consistency between teachers has to build up and this is what the moderation process is about. Good external instruments can help achieve this cross calibration. They might also help by making clear the breadth of achievement amongst pupils. Consider the question - why didn't secondary teachers know about the 7year gap in mathematics? Why did the research results come as a shock? Teachers know very well who is in the top 10 and bottom 10 per cent, but perhaps they do not know how far behind or ahead these extreme groups are.

However for SATs reliability and sampling are substantial problems. SATs alone cannot sample all the variety of Attainment Targets, cannot sample over ranges of contexts and cannot sample over a range of times and occasions. Thus SATs will have to work on very restricted sampling, but what should be the correct basis for that sampling? This is still a problem. One of the TGAT arguments was there should only be a requirement to report at the level of Profile Components and not at the level of each individual Attainment Targets. This could relieve the pressure on reliability. Whilst SEAC and their contractors struggle with the problems, it also has to be noted that the Parliamentary Orders for Assessment have yet to be determined.

Central to the reconciliation of external and internal assessments will be the moderation process. I would urge you to read both the main and the first Supplementary Reports of TGAT on this issue. Note that it seems probably that SATs will have to be marked by teachers. Teachers will be the first to have information from SATs about what levels their pupils have reached, and to be able to compare that with what they, through their own assessment, have judged. This will enable teachers to develop confidence in appraising their own judgements. They will be the first people, within a school, to attempt to resolve any discrepancies between the two sources. From this, they can select samples of work to bring to moderation meetings - to explore discrepancies and attempt to resolve them with their peers. It will not be possible to use moderation to resolve all the discrepancies of individual pupils. Moderation can settle the overall distributions and can explore the key areas of discrepancy for each school. Group moderation should provide the medium for communication between teachers about their different expectations and interpretations. Peer review of pupils work can make such meetings a valuable source of in-service training. Such meetings are also feedback meetings. They provide a mechanism to feedback criticism into the national system, about SATs and about any faults in the curriculum targets.

The recent DES Booklet, **From Policy to Practice** is very clear about this as the following quotation shows:

> "Proper monitoring of developments and evaluation of the effects of the changes will be essential, not least for revision and renewal of the curriculum. All involved in the education service will have some part to play in this, but in particular: **teachers** will be able to provide early qualitative information about what works and what does not. The moderation arrangements will be an important focus for considering whether changes in the attainment targets, programmes of study, standard assessment tasks, etc. are needed....."

CAN IT EVOLVE?

The issue of moderation naturally leads, via the above quotation, to this final question. All that has been said in this talk should indicate both the range of interesting and yet demanding innovation that has now to be achieved, and the need for reflection and revision over the first years of implementation. The quality of that reflection and revision will depend very much on the determination of all involved in the teaching profession of use to the full the opportunities that are available to revise and improve the national system.

Views on Assessment at Age 7

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The assessment at age 7 is the first to 'move into focus'. It is particularly challenging because not only must it break all the new ground of National Assessment - it will the first National Assessment we have had for many years - but it must break new ground for any curriculum-related assessment at this age. There is plenty of assessment of 7 year olds but of the standardised, non-curriculum related kind. We have the experience of the Assessment of Performance (APU) surveys (at least in science) at, or close to, all the other reporting ages of national assessment but not at age 7. It therefore has to confront two main sets of issues; those concerning the national assessment at any age and those more specific to age 7. I propose to deal with both of these, taking the general before coming to the specific later. But first a few initial points to make explicit the features of the National Assessment which I am not going to discuss, but simply take as read:

- that it is to serve both formative and summative purposes; summative ones by aggregation;
- that it is to use a wide range of methods;
- that it comprises Teacher's Assessment (TA) and Standard Assessment Tasks (SATs)
- that it is criterion-referenced and curriculum-related;
- that the main reporting framework is the TGAT 10-level scale;
- that what is assessed is achievement, not the ability nor potential of pupils;
- that there will be some form of moderation to ensure that the criteria are being applied in comparable ways by different teachers and schools.

These are important decisions which set the guidelines for the assessment and give it a character which is to some extent unique. Many of us would agree that they are good qualities for a National Assessment, but agreeing to them does not mean that they can necessarily be implemented.

What happens when we try to implement these proposals? Perhaps one of the greatest problems arises from the nature of the criteria provided in the newly created curricula. Now that we have the final versions of the science and mathematics curricula we can look at what they may mean in assessment terms and what we find presents an enormous problem. It could be argued that this problem arises at least in part from having one set of groups concerned with the setting up of the curriculum and articulating the criteria for achievement, and another concerned with preparing assessment procedures and instruments to assess pupils in relation to these criteria or statements of attainment.

Certainly the Science Working Group (and I think the same can be said of the English group) did not address assessment issues as a central part of its task. This was partly because of the pressure of an unrealistic time constraint on its work, but it was also a deliberate rejection of the notion of an 'assessment-led' curriculum. Speaking as a member of the Science Working Group I think it is true to say that we did not wish to compromise our educationally valid statements by tightening them so that they might more easily be assessed.

The Science Working Group's (SWG) reluctance to allow assessment to dictate children's learning experiences was evident in the way it approached its task, rejecting the direction from the Secretary of State to identify Attainment Targets first and devise Programmes of Study to meet the targets. The SWG felt uncomfortable with this explicit objectives model of the curriculum; we felt more confident of identifying worthwhile learning experiences and working from these to what children could achieve. This was the initial approach although of course at later stages the process was iterative, moving back and forth between programme of study and Statements of Attainment to ensure consistency between the two. We gave little, if any, thought to the assessability of statements of attainment. That, we said, was someone else's problem! Consequently somewhat loose statements, such as the following, abound:

- prepare and deliver a report matched to audience which incorporates background material from a variety of sources (AT1 8c)

- understand that when things are changed in shape, begin to move or stop moving, forces are acting on them (AT10 3a)

- be able to give an account of an investigation of the strength of a structure (AT10 5b)

It is almost too obvious to point out that without being more specific about what, for example in the first of these, is meant by 'a report', or what range of audiences is expected to be addressed, how extensive the variety of sources is intended to be, etc., etc., assessment of whether the criterion is met is almost impossible.

The problem is not just in science, of course. In English we have the following:

- listen attentively to stories and poems and talk about them (AT1 2c)

One wonders how 'listening attentively' differs from listening in any other way and how many poems and stories have to be treated to this kind of listening.

It is now for those constructing the SATs and other assessment procedures to decide the details of how it will be decided whether what children do, say or write meets these criteria. There is clearly plenty of scope for distortion of the intended meaning. Even though the Working Group and the NCC gave some general guidance as to what they had in mind in using the words and phrases 'understand ', 'know that...' 'be able to...', and in the Mathematics and English curricula there are examples given for each statement of attainment, it still remains that those within the assessment consortia are giving operational meaning to them and at the same time deciding the range of contexts in which an area of understanding or skill has to be demonstrated before it is said to have been achieved. As soon as the test procedures and instruments become public property they will be seen as the source of answers to these questions of definition and application. **The process of developing the curriculum is therefore still going on, but in the hands of test developers not curriculum experts.** This seems to me something which we should ponder, if not worry, over.

The conclusion I draw from this is not that the Working Groups should have been transformed into the bodies creating the assessment procedures, but rather that, had we foreseen the problems ahead, we may have taken a different line in relation to the complexity and the expression of attainment levels. I feel sure, for example, that we would have thought twice about producing 170 statements for teachers of KS2 pupils to assess for science alone! When you add those for English and for Mathematics it can look rather overwhelming. Of course, these don't all have to be covered in a short time - there are four years in Key Stage 1 - but nonetheless with hindsight it would have been possible to have produced something less daunting.

My hope is that the **review of the curriculum** will be a reality not an empty promise and that the revision will not be restricted to tinkering with the wording of a few statements. What we need is a real review, once we have gone through the whole cycle, and the chance to say 'can we do the whole thing differently and better?' It may be that a radical change in structure is required to avoid the elaboration and lengthening which the process of revision has produced in the science curriculum so far.

General issues of designing assessment procedures

Turning to some general issues to be faced in converting the general guidelines provided by TGAT into assessment procedures and instruments, the first takes up again the relationship of Statements of Attainment to specific instances of behaviour. This is a problem for both TA and SATs and it can be illustrated by reference to the statement quoted above from the English Curriculum: "Listen attentively to stories and poems and talk about them". The question to be faced is when this broad and general statement is satisfied by one specific instance of behaviour or by a particular set of specific instances. It is important to pursue this question because that is what the teacher is going to be faced with. The teacher does not see children 'listening attentively to stories and poems' but rather children reacting to one poem at a time or one story at a time. From this he or she somehow has to make a decision about when the general statement is met. How many stories and poems has a child to listen to attentively to meet this criterion? If she or he does it once, it is enough? Is a 7-year-old doomed never to complete level 2 if he or she is engrossed by stories but has failed to listen attentively to any more than one poem? And to whom has the child to talk about them? If this is at home does it count? Does it matter what is said about the story or poem?

The second general point is about the distinctive difference (if any) between TA and SATs? There are clearly differences in timing, and possibly in scope. It is now generally accepted that teacher assessment continues throughout a key stage whilst the SAT comes towards the end of it. In scope there may be differences where, in some strategies SATs sample statements of attainment, whilst TA must relate to all of them, since the whole programme of study has to be covered. But are there other differences? Per-

sonally I see the two as very different, but I am aware that others do not.

There is an interesting difference between primary and secondary views on this matter, the latter being conditioned by GCSE teacher assessment. The secondary view of TA tends to be of a series of set pieces, scattered throughout teaching, being of the same character but extending the range and sampling of formal assessment. They do not intrude in the same way as examinations and more contexts can be covered, but they are still rather formal and involve pupils doing the same tasks as each other for the purpose of assessment. The primary view has more in common with the information that teachers pick up during their interaction with children without setting up special situations. This is different in kind from formal assessment. It takes place in everyday interactions between teacher and child, when teachers observe children in their activities and study pieces of the children's normal work. It is less certain and more difficult to handle than are activities designed to make decisions about particular achievement. But being different, this form of TA complements SATs; otherwise the two are very similar and it is difficult to see why we need both. It seems to me to important that we clarify which of these two approaches, that I have characterised in terms of primary and secondary approaches, we mean by teacher assessment. At the same time we may have to accept that there is a difference between primary and secondary teacher assessment because the general primary classroom teacher has a much greater opportunity to collect and synthesise information from a wide range of children's activities than does the secondary teacher. I would not wish to see the secondary pattern imposed on the primary teacher for the sake of uniformity. That would mean primary teachers giving children what were in effect parts of SATs all the time and again there would be no sense in having both if TA and SATs became the same. There is no doubt in my mind that for SATs to dominate primary teaching in this way would be detrimental. It is important for schemes of work to be based on the Programmes of Study, making sure that there are opportunities for gathering information about children's ideas and skills in a variety of contexts which this provides, not based on assessment activities.

A related point concerns whether SATs can have a high or a low profile. The opinion has been expressed that the position of SATs is being inflated and should have been played down. Were it possible to think of low profile SATs it would be possible to take a very different set of decisions about them. If they were seen to be not of much import, they could be 'quick and dirty' or 'cheap and cheerful'; routine things that children have to do (like having a dental inspection - and no more newsworthy). Perhaps this would have been possible had there been no intention of using the results outside the school.

As it is we have a range of purposes for the National Assessment which makes it impossible for SATs to have a low profile. TGAT expressed them as:

- to provide the teacher with feedback about pupils' achievements so as to guide decisions about the next steps to be taken;
- to be diagnostic, indicating particular difficulties so that remedial action may be taken;
- to provide information about the overall achievement of individual pupils at the end of the key stages;
- to provide information about the achievement of groups of pupils at certain ages for reporting on the performance of the school.

The first two of these are formative purposes, for which detailed information is required which, by aggregation, can be used for the latter two summative purposes. It is the summative purposes, reflecting the Government's intentions in introducing national assessment to make performance public, that mean that SATs cannot have a low profile. Reporting of performance at the whole school level will affect their reputations, parents' judgements and consequently recruitment at a time when the changes in financial management of schools means that recruitment cannot be allowed to decline. There will be a drive to produce a good school result and this is seen to depend on the part of the assessment which is external, the SATs. In these circumstances it seems highly unlikely that people will not see SATs as very important and will therefore look at them as guidelines as to what children should be able to do. In such a climate it would irresponsible to take the line that they can be minimised. Had we had only the first two purposes of assessment in the list above it may have been possible to take a different line.

The same arguments apply to the question of whether SATs should sample or comprehensively cover the Statements of Attainment. The high profile means that a SAT which only samples the statements of attainment could be a dangerous thing. Whilst there **appears** to be the option of sampling or covering all the statements, to do the former would inevitably have a narrowing influence on the curriculum. It would also be not unreasonable to suppose that attention would be given to the more easily assessable behaviours. It is for these reasons that the STAIR consortium took the decision to include all statements of attainment in all attainment targets for levels 1, 2 and 3 in its SATs.

[STAIR is the Standard Tests and Assessment Implementation Research project, which is a consortium based at Manchester University comprising Manchester and Liverpool University Departments of Education, five LEAs, a publishing house and an examinations board.]

There are several issues relating to aggregation at different levels. As we have seen from the examples of statements of attainment, within one statement there can be various behaviours or attributes. Thus a decision has to be made as to whether all of these has to be attained before the statement can be said to have been met. We might call this the first level of aggregation. The second level concerns the statements within a level for any attainment target. Does the child have to meet the criteria in each and every one of the statements at a level to be judged to have achieved that level (remembering that there can be as many as nine statements for one level and most have four or five)? The present situation in science is that all statements do have to be achieved, but this seems unreasonable when, with so many at each level, it is inevitable that a few will not be attained whilst progress on statements at higher levels may well be possible. The third level of aggregation is across the levels in different attainment targets to give profile component results. What happens when a child is at different levels for different attainment targets within a subject? Clearly an arithmetic average has no meaning, but neither does the result of any other rules for arriving at one level from many. We look to SEAC for guidance on these matters but it unlikely that they can do more than provide rules which allow us to proceed but do not solve the underlying problems. These problems stem in part from the multitude of statements in the curriculum and in part from the lack of articulation of the assessment procedures with the initial framework.

The relative advantages and disadvantages of differentiation by task and differentiation by outcome is an issue mainly in the design of SATs, but it also has implications for teacher assessment. Differentiation by task occurs when pupils work on a task which can be tackled in various ways which could meet criteria at one of several levels and the assessment is made on the basis of which way is chosen by the pupil. Thus the same task could be given to pupils judged to be at level one, two or three and each assessed by their different response. Differentiation by task requires tasks which are level specific, so that different one would be required to assess whether a child meets each level one criteria or level two criteria and so on. There are advantages and disadvantages of each; differentiation by outcome requires fewer tasks and could be regarded as more efficient, but it requires delicate qualitative distinctions to be made between one kind of performance and another, whilst differentiation by task demands a larger number of tasks but each requires only a yes/no decision. The decision in the STAIR consortium has been to opt for differentiation by task, mainly for the reason that this is easier for the teacher, in administering and marking SATs, not to have to make decisions about levels of performance or the extent to which a skill is present. This is a decision with which I do not agree; it makes for an enormous SAT, since all statements have to be addressed by separate tasks, and I believe that teachers are able to make the required distinctions between different performance at different levels. They will be doing it in TA anyway; normal classroom activities provide similar experiences to which children respond in different ways according to their development. However it would not be possible to use only differentiation by outcome because the curriculum was not designed with sufficient continuity from one level to another. A mixed economy seems most appropriate.

Another issue concerns the extent to which pupils are to be involved in their own assessment. By this I do not mean just involvement as in creating records of achievement, but in using the new language of assessment. Should they be initiated into the use of the criteria, understand the notion of levels and use the same new vocabulary of the curriculum that teachers are using? Now that assessment is such an important part of children's education it would seem difficult to leave them out of it. Great care would, however, be necessary is introducing moves towards greater pupil involvement, particularly with younger and less mature pupils who may value the token instead of the reality of achievement.

My final general point expresses concern that in the plans for SATs and teacher assessment we are restricting attention narrowly to the curriculum as written. We all know that what is written is the bare minimum, the common entitlement of all children. This is no reason for confining the experience of children to this common material and if we include other aspects of learning then we should also assess them. There could be plenty of examples, but the one I would like to choose to illustrate this is the matter of attitudes in science.

I am well aware of what TGAT said about the reporting of the assessment of attitudes. But according to my reading it did **not** say that attitudes could not be assessed, should not be assessed and least of all should not be included in the curriculum. But from the effect of the report's statement on the Working Groups' reports you would think that it said all of these things. In science, if we look at any of our statements of policy, at national, LEA, and school level, prior to the National Curriculum, we will find statement of scientific attitudes taking a place side by side with process skills and science concepts. Indeed in primary school policy documents attitudes are often placed first, so important were they felt to be. Are we so fickle in our attachment to these aspects of learning that we can drop them so quickly and completely?

Looking back on the way the science curriculum was constructed it now seems to me that it contains in its profile components two interconnected yet separately definable components of scientific activity - science process skills and science concepts - but

that this is but two thirds of what should be there. I very much hope that in implementing the new curriculum schools and teachers will make their own versions of the curriculum, including what is required by law but adding to it those further aspects which they have always felt so important. Without the addition of attitudes the message conveyed about the nature of science is limited and misses the elements which are about ways of using evidence, willingness to change one's mind, adapt one's ideas, which are at the heart of science.

Issues of assessment at age 7

All of the general points which I have mentioned apply to the immediate work of developing assessment procedures for 7 year olds. Perhaps particular interest attaches to the nature of the distinction between TA and SATs and the way in which this changes over time as SATs enter the public domain. It seems likely, for example, that once teachers have administered a SAT that they will pick up from it techniques that they can use in their regular observations of children (eg such as questioning techniques, giving children invitations to explain their ideas, activities which are rich in opportunities they give for children to show certain skills or ideas.) This expectation is based on what happened in the case of the APU. Initially there were very strong objections raised about APU science tests, all based on ignorance of what they were. These objections evaporated when teachers saw that there were many helpful and worthwhile ideas to be picked up from the test materials, not for the purpose of testing children but in terms of ways of asking questions, expressing problems so that children became involved in using process skills in tackling them and so on.

For this to be a positive influence in the case of SATs helping teacher assessment, it is clear that the SAT material must be exemplary of good assessment practice and reflect good teaching practice. Here is a further argument for tackling the production of SATs in a thorough, not minimal, way. The impact of SATs on TA and of both on the curriculum should be monitored since we have a unique opportunity to investigate these influences.

Finally a few issues specific to primary, if not to age 7 only. How close to the normal activities should SATs appear to be to the children? Should they be thematic? Should they keep to one context or deliberately spread over as many contexts as possible? If one context, should this be one commonly encountered or one not commonly encountered?

Considerations of validity in assessment indicate that the SAT should provide tasks with which children feel at ease, which interest and engage them. This suggests a 'normal' classroom context; but of course this will mean different things in different schools. Most infants' classes design their work round a topic, but this is not the case for all. If a topic approach is adopted in a SAT the choice of the topic is important for any one may be more familiar to some than to others. Familiarity can bring boredom and not necessarily bring advantage, but either way it has an effect. The effect could possibly be randomised by using a number of topics but this would mean changing topic far more often than would be normal.

A related question concerns the amount of choice a teacher might be given in the matter of which three SATs to use. This, like some of the other questions, is difficult to consider without the knowledge of what a SAT might be like. It may be that some SATS are so inappropriate for some schools that teachers should be able to avoid them, but if SATs are carefully trialled and piloted this seems unlikely. The STAIR SAT are being created by teachers (250 teachers are involved in the five LEAs in the consortium) and what they are producing is material which could be described as good teaching material in which opportunities for assessment are embedded. The children need not be aware of being assessed. In developing this material - and we recently worked intensively with a group of about 50 in a six day residential writing exercise - teachers became so engaged by it that they said they would not wish to drop the topic at the end of the SAT. Thus if the material is seen to offer interest and novelty to both teacher and pupils whether or not there is choice may not matter. In fact it seems very likely that the STAIR SATs will be devised in sets of three, each one having a different and complementary role in relation to the others. A pick and mix approach would therefore be inappropriate.

The time that has to be devoted to SATs has been a cause of some concern. The idea of spending three weeks on one set of assessment tasks seems at first outrageous. But many of the points already made soften this reaction. Such a length of time will indeed be needed if a SAT is to cover all the statements for mathematics, English and Science for levels 1 to 3, is to allow the children to become involved and 'at home' in the work and to allow the teacher time to make the observations and gather all the products which are required for assessing all the seven year olds. Indeed many activities in the SAT may not be assessed, but will be provided to keep the work going whilst the teacher focuses on specific children at specific times. As far as the children are concerned the activities will appear 'normal' and they will provide opportunities for learning.

However, this matter of time cannot be dismissed lightly. The assessment required for the national curriculum makes heavy demands on the time of the teacher and of the pupils. We have to make sure that it time well spent.

'INSET, professional development and a shared value system'

Keith Evans

Director of Education for Clwyd

Until fairly recently, educators committed to in-service education and training and to continuing professional development were deeply frustrated by the difficulty of identifying at local level resources allocated by central government for this purpose but buried within the unspecific block grant of the rate support grant (RSG). Our word power increased at the same pace as our annoyance when we were told that these moneys were "unhypothecated"!

However various specific grants from the valuable learning experience of TRIST to the less manageable acronym of LEATGS (LEA Training Grants Scheme) introduced on 1st April 1987, have changed the situation dramatically. As I write, a DES press release announces that £300 million will be available for INSET in 1989/90; £220 million from Government, topped up by £80 million from the LEAs' own resources. Under the scheme national priorities are supported by 70 per cent grant and local priorities by 50 per cent grant. Authorities are expected "to consult individual schools and teachers, take account of their needs in drawing up plans and assess the results of these programmes in order to develop an increasingly effective training system". The press release ends with a summary of 17 national priority areas for the training of teachers and others employed in the education service in schools, in further education, youth and community work.

Against the background of our earlier frustrations it may appear somewhat churlish to express any reservations concerning a scheme which, whatever else it may be, has the great merit of recognising the importance of INSET and clearly earmarking specific resources for its implementation and it is within the context of such a welcome recognition that the following observations are made.

The Training Grants Scheme appears to be based upon two tacit assumptions which are rather simplistic in nature and which, unless they are challenged and broadened, will inhibit the aspirations and development of the scheme to an unnecessarily restricted range of purposes, aims and objectives, predominantly instrumental and only marginally expressive.

These assumptions are, firstly, that the concept of "training" is acceptable to a work force of educators for whom personal and professional development has become a way of life and, secondly, that this "training" will be the utilitarian mechanism whereby a series of recognised innovations and priorities will be implanted into some kind of value-free tabula rasa called "the education service".

These two assumptions have to be questioned and - without looking the gift horse of LEATGS in the mouth - an alternative model based on the concepts of continuing professional education and development within a value-laden activity and culture will be adumbrated, the aim being to transmute the silver of "training" into the gold of "education" through the alchemy of a shared value system.

DEFINING TRAINING

Let me look first of all at the concept of "training". My own views on training were deeply influenced by the excellent but restricted successes seen and experienced during National Service in HM Forces where young men of modest attainments were trained to a high pitch of efficiency to achieve known objectives. The process of training should never be a subject for condescension for it produces skills often of an intellectually demanding and complex nature. Its objective is to ensure that the persons gaining the skills can operate at the maximum level of effectiveness within the confines of current knowledge and understanding in any particular field.

But this concept, valuable as it is, is neither sufficiently ambitious nor appropriately open-ended for the developmental needs of self-motivating professionals. Education - as opposed to training - should aim to develop in individuals a range of powers and sensitivities that will equip them to tackle problems the nature of which may not yet be known or even

guessed at and to acquire, interpret and extend areas of knowledge which may yet be undiscovered.

For many years teachers have lived, and become comfortable with, the acronym INSET, giving as it does equal stress to education and training. It is much more than a pedantic obsession with semantics to regret the dropping of the capital "E" and the stress on the capital "T". Genuine professional development must be a quintessentially "educational" experience.

A second - and equally serious - shortcoming of the current LEATGS rhetoric is its apparent assumption that a structure of in-service education and training can be built out of a series of building blocks, each with its pre-ordained place in the structure and each catering for a separately identified need or priority. In some ways this is quite a legitimate approach. Of course we need our attention directed to the content of the National Curriculum; of course we need to upgrade our skills in assessment and testing, in organisation and management and appraisal; of course we need to develop our confidence and skills in using new technologies across the school curriculum. But unless these building blocks are bonded together by the mortar of shared values their sum total may not add up to a significantly improved system.

A modern philosopher relates somewhere the parable of a tourist being shown around the buildings of Cambridge. He is shown King's College, Trinity College, Jesus College, Selwyn College and so on until, puzzled and exasperated, the tourist asks his guide "But where is the University?" We need to ask ourselves a similar question as we come to terms with the requirements of the Education Reform Act of 1988 and in so doing try to interpret the LEATGS enshrined in Section 50 of the Education (No.2) Act of 1986.

EXISTING VALUE SYSTEMS

In-service education and training and professional development do not, and cannot take place in a vacuum. The education service is heavily value-laden and it is not difficult to exemplify this fact by modelling an extreme (but nevertheless illuminating) dichotomy between two value system which have always run through our work like a warp and a weft. We can call them for convenience the "societal" and the "individualistic".

The complex of values we call "societal" has a pervasive feel of the "basics" about it. From this angle of vision we expect children and young people to be able to read with fluency, to write legibly and grammatically with accurate spelling, to master the disciplines of listening and concentration, to have reference skills in gaining information from printed sources, to think in a linear fashion, to solve problems logically and to convey meaning through a wide and precisely employed vocabulary, and to be confident in mathematics and computation. In terms of personal qualities children are expected to be industrious, persistent, conscientious and obedient.

Those values which, for our shorthand purposes, we categorise as "individualistic" march to a different beat. Youngsters are expected to develop their own attitudes, their own way of life and the predominant theme is one of personal autonomy. They are encouraged to be observant and curious (curiosity and creativity appear to go hand in hand), to gain information by enquiry and experiment, to have a broad general knowledge, to be strong on estimation and approximation, to plan their own independent work, to organise their own time, to set their own goals and - following the Plowden philosophy - to play an active role in their own development. In personal terms the ideals are those of independence, autonomy, self-motivation and a healthy scepticism.

Interestingly enough, both sets of values have as their springboard the Protestant work ethic at its most arid and utilitarian and both need to be tempered by the co-operative, fraternal and communal aspects of that ethic. As educators in our schools and colleges we are constantly - though perhaps not consciously - steering a course between the Scylla of the societal and the Charybdis of the individualistic and our personal value system consist of an infinitely variable amalgam of elements drawn from both sides of the continuum.

Innovations of all kinds, including in-service education and training and professional development have to be internalised into a "receiving culture". But this culture cannot be fully explained in terms of the values of individual educators. Clearly each school, each college, each Authority has its own culture and these represent tariff barriers through which changes and developments have to pass. As the realities of local management of schools and colleges begin to take shape so the urgency of identifying and articulating the core mission and values of each institution grows. From such a springboard to effective self-management the cyclical model of policy making, goal setting, planning of priorities, budgeting, implementation, and evaluation can begin to move into gear. Without such a clear statement of purpose and values it will be difficult to maintain our sense of direction in a period of discontinuity and rapid change; this is true of all our educational endeavours and must - a fortiori - be true of our approaches to INSET.

A MISSION STATEMENT

In order to try and meet this urgent need we have in our Authority (inspired to a large extent by exemplars in business and industry) attempted to list our shared values, our "non-negotiables" and these have been

produced in the form of a "Mission Statement" which, in an industrial/commercial context, would be the starting point for a "business plan" involving strategy, structure and process and in an educational setting following the cyclical model described above.

Taking as a starting point the Education Reform Act 1988 proposition that "a maintained school should provide a balanced and broadly based curriculum which:

(a) promotes the spiritual, moral, cultural, mental and physical development of pupils at the school and of society, and

(b) prepares such pupils for the opportunities, responsibilities and the experiences of adult life".

the Mission Statement proceeds to state that: "in order to achieve these aims the Authority will seek to:

- foster positive attitudes to the needs and wishes of the service's clients (pupils, students, external organisations);
- provide on an equitable basis premises and resources suitable for and conducive to teaching and learning and achieve maximum benefit from them;
- employ sufficient professional and support staff to carry out such teaching and promote such learning;
- nurture a stimulating and rewarding environment/culture in which all members of its staff (its greatest asset) may flourish in shared "ownership" of the service;
- ensure that teachers are given every opportunity and encouragement to achieve the ideal of the "extended professional";
- ensure that the service is delivered in "thinking schools/colleges";
- ensure that these schools/colleges are managed by Heads/Principals who understand and exercise leadership;
- ensure that these schools/colleges are sensitive and responsive to the needs of the communities and the society which they serve (including a proper recognition of the cultural and linguistic diversity represented by "the Welsh dimension");
- ensure the provision of management structures to maintain continual monitoring, evaluation and adjustment".

The Mission Statement goes on to promise that: "within the schools and colleges teachers will resolve:

- to value all young people equally;
- to get to know them well;
- to maintain the highest expectations to all young people;
- to be concerned for the education of the whole person - for the affective as well as the cognitive, the emotional as well as the intellectual and to pursue this end through experiential as well as didactic methods;
- to seek to produce self-motivated life long learners with persistence and conscientiousness;
- to prepare young people for citizenship in a democracy through working interactively with the local neighbourhood and the wider community".

But rhetoric is easy; to be really effective the values enshrined in the Mission Statement must be chosen freely, chosen from among alternatives after due reflection prized and cherished, publicly affirmed, and acted upon as part of a pattern that emerges from repeated action. The more we understand about values the more able we are to make wise choices and to take appropriate action. The more we clarify our values the more we shall be able to perform independent, decisive and consistent acts based upon the courage to say what has to be said and to do what needs to be done.

The last decade or so (dating back to Prime Minister Callaghan's speech of October 1977) has been a profoundly de-stabilising period for all educators. Teachers' professionalism has been eroded. The profession is now taking on board a wide range of changes and "reforms" - managerial as well as pedagogic - and in order to meet these new demands we shall continue to embrace with enthusiasm the opportunities for INSET and professional development offered by the LEA Training Grants Scheme. But do not assume that this structure is being erected upon some kind of educational "green field site". The fact is that teachers have created for themselves and their clients a "receiving culture" with a rich and diverse value system. The recognition, identification and articulation of that culture is an essential prerequisite and concomitant of meaningful professional development on whatever scale it may take place - department, school, consortium or Authority.

We have a complete list of Cambridge colleges; we must continue asking the question "Where is the University?"

'Disconnecting Knowledge and Understanding from Human Values:

a critique of national curriculum development'

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THE NATIONAL CURRICULUM AND HUMAN VALUES

The Education Reform Act cites two major aims of the National Curriculum. Firstly, that it promotes the spiritual, moral, cultural, mental and physical development of pupils at the school and of society; and secondly that it prepares such pupils for the opportunities, responsibilities and experiences of adult life. There is a very real danger that the national curriculum as it shapes up in practice will reflect neither of these two closely linked aims. The CBI has forcibly argued that the Secretary of State's interventions in the deliberations of the science and maths working groups has culminated in a specification of knowledge, understanding, and skills which dissociates these subjects from their practical utilisation in the world of industry and commerce. Indeed, the CBI have argued that 'the professionals' on the working groups should not have been subjected to the degree of political 'running interference' they suffered since their deliberations appeared to be on course.

It appears that 'the professionals' were more in touch with the perceived needs of the consumers of education than the Secretary of State appeared to be. Some will find it depressing to discover that the Government's previous advocacy of a more vocationally orientated curriculum was largely rhetorical. The significance of this advocacy was largely symbolic rather than instrumental, in the sense that 'the new vocationalism' constituted a rhetoric for enhancing political control over education rather than for actually bringing about any substantial shift in its content. Now that the ERA has legitimated that control the rhetoric is defunct. We are left with a curriculum founded upon a myth about the educational excellence of the old grammar school curriculum. Central to this myth is the idea that the traditional disciplines or subjects encapsulate standards of educational excellence.

The origin of the myth lies in 'Arnoldian vision' of the disciplines as the bearers of universal and objective values which transcend the practical concerns of everyday life.

As John Milbank has recently argued, Arnold saw practical life in Victorian England to be dominated by instrumental rationality. All that people could agree about was that there should be **more** health, **more** industry, and **more** freedom. The task of education was the discernment of what health, industry and freedom were **for**. And these questions about the true ends of humankind could only be answered by transcending the realm of the practical. The disciplines as bearers of human value were conceived within the Arnoldian vision as essentially contemplative activities detached from the practical cultures of everyday life.

It was the 'Arnoldian vision' which underpinned the curriculum of our universities and the state grammar schools. And it implied that excellence consisted of 'right reason' achieved in the contemplation of universal and objective values detached from the practical concerns of everyday life. Milbank points out that for Arnold the disciplines are not to be conceived merely in terms of the acquisition of a knowledge of factual qualities. 'Right reason' also involved "a process of moral discernment which develops only gradually, and which is indissociable from certain qualities of aesthetic sensibility". Central to such discernment were the humanistic disciplines such as the study of literature, history, the arts and indeed the Bible conceived as 'religious literature' but "without mediation by particular doctrinal creed".

As Milbank points out, there is a great deal in the 'Arnoldian vision' which is uncongenial for Mrs. Thatcher.

> ...not for her the delicate qualms and flutterings of a refined sensibility; not for her that Oxford 'reserve' in the face of modernity which to the perplexed undergraduate from Grantham seemed to mix an addiction to triviality with elusive claims to transcendence. Thatcher realises, as Arnold and his descendents did not, that to ask what are health, industry and freedom is a superfluous luxury in a capitalist system: the system works best when freedom, production and wealth - which hitherto had

always appeared to be only a means - are themselves treated as ends... Public guardianship of aesthetic and moral values now has no place because this notion cannot be subject to the arbitrations of the principle of the sovereignty of individual choice.

This is why the 'new vocationalism', with its emphasis on the acquisition of industry-related skills appears to encapsulate a curriculum theory which is far more consistent with the market philosophy of Mrs. Thatcher. But its practical realisation entailed the dismantling of the subject- based structure of the grammar school curriculum. And this would have carried an implicit attack on a powerful public myth; namely, that the traditional subjects are the source of educational excellence.

Milbank argues that the 'Arnoldian vision' which underpinned the grammar school curriculum was in decline long before Mrs. Thatcher's government came to power. The inter-war years saw the rise of 'a renewed empiricism' which "eventually could not sustain notions of objective goodness and beauty". The humanistic disciplines became transformed into a "supposedly detached classification of positions, theories, and social and textual structures". 'Objectivity' remained as a claim to transcendence over the biases and prejudices which coloured the practical activities of everyday life. But now it signified that only factual qualities fell within the domain of public knowledge. And of course this transformation of the Arnoldian vision is now inconsistent with the present government's philosophy. Values were relegated from the domain of rational discourse and conceived as matters of non-rational personal preference. They were no longer considered to be a legitimated part of the public content of education. Milbank claims that

> The 'brilliantined positivists' of the 1950s who still stalk the provincial universities of the 1980s, were, for all their greyness, in a sense portents of our contemporary market hedonism. For they helped to **banish** from universities serious areas of public discourse - about politics, about moral issues.

And of course transformations in the content, if not the form, of the curriculum in the universities was bound to filter down into the grammar schools which fed them with students. It is no wonder then that my own grammar school education in the 50s involved no consideration about the ends of human life. The 'Arnoldian vision' of a transcendent rational viewpoint had by then, according to Milbank, "lost its Platonic grounding, so that transcendence no longer consisted in the attainment of a higher standpoint of virtue and aesthetic appreciation, but simply in the cold gaze of truth upon the many varieties of non-rational preference".

The view of educational excellence encapsulated in the 'Arnoldian vision' has long disappeared in its undistorted version from the substance of much of the grammar school curriculum, but the reproduction of the form of the curriculum evokes a widespread sense of romantic nostalgia for what it once promised to deliver: a discernment of the common good capable of unifying individuals in society.

This is the shadow rather than the substance of our national curriculum. The rhetoric of Sir Keith Joseph's 'new vocationalism' could never have evoked such a powerful image of excellence, however consistent it is with the prevailing political philosophy. It is to Mr. Baker's credit as a politician that he has grasped this better than his predecessor, perhaps because he suffers a little from a romantic yearning for the return of the Arnoldian vision himself.

However, in general it is clear that the 'Arnoldian vision' is more embraced by the Secretary of State at the level of rhetoric rather than practice. We must view the state's avowed purposes for the national curriculum - promoting spiritual, moral, and cultural development - with a degree of scepticism. The requirement that achievements in the core and foundation subjects should be conceived as measurable targets specifying knowledge, understanding, and skills to be learned sequentially suggests that subjects are largely to be viewed as purveyors of factual knowledge and the technical skills of knowledge acquisition rather than as sources of values. Such a curriculum is a very distorted version of Arnold's vision of educational excellence as the discernment of universal values, but one which happens to be consistent with the view that values do not fall within the domain of public discourse and are to be conceived as a matter of private preference. The framework of targets and levels of achievement which are to structure the teaching of each subject reinforces a view of subjects as repositories of factual knowledge, and in doing so not only eliminates values from the curriculum but also tends to disconnect knowledge acquisition from practical problem solving in everyday life. This is not to say that the knowledge, understanding, and skills specified in the form of targets and attainment levels are not selected in terms of their perceived utility for undertaking practical occupational and other tasks in everyday life. What it does mean is that the process of knowledge acquisition is seen as quite separate to the process of its utilisation. This has the effect of ruling the problems of everyday living out of the stated public curriculum. It is in this light that we need to interpret the second stated purpose of the national curriculum; namely, that it prepares pupils for the opportunities, responsibilities, and experiences of adult life. This was indeed the avowed purpose of pre-vocational education but interpreted in terms of developing those skills which are generic to practical effectiveness in occupational and other life situations. The

development of such skills cannot be restricted to contexts of mere knowledge acquisition. They are also related to an individual's ability to utilise knowledge in the practical situations of everyday life.

The Secretary of State accommodates the 'new vocationalism' or the TVEI, by trying to ensure that vocationally relevant skills are targeted within the subjects. But such 'curriculum enrichment' could result in an emphasis being placed on skills related to technically conceived information processing tasks rather than on more dynamic and active skills involved in applying knowledge to practical situations. This could constitute a considerable distortion of the original rhetoric of TVEI which was heralded as the alternative to a curriculum primarily aimed at the transmission of academic knowledge disconnected from the practical requirements of everyday living.

In the national curriculum we have a framework which both distorts the 'Arnoldian vision', by reducing subjects to bodies of factual knowledge and the skills involved in its acquisition, and maintains that aspect which dissociates the process of knowledge acquisition from the context of its application in everyday life. Arnold's vision is built on the illusion that academic subjects constitute sources of universal values and knowledge which transcend the particular social traditions that govern and bias peoples' practical conduct in everyday life. I would claim that our conceptions of human values are dependent upon, and relative to, our participation in a particular social tradition and that our knowledge of useful facts is conditioned by such conceptions of value.

Not only are there no universal conceptions of objective value which can be promoted through a national curriculum. There are also no universal conceptions of useful knowledge that can be so promoted. It follows from this that the idea of universal standards of excellence in education is a myth promoted by the modern state to bolster, in the words of Milbank, its "absolute sovereign power in the face of irresolvable religious and moral conflict". Knowledge and skills are 'objectified' as standards by abstracting them from the practical contexts of their application, contexts which raise issues about the values which ought to govern our conceptions of useful and worthwhile knowledge. The acquisition of knowledge and skills can only be nationally standardised in the form of prespecified targets and levels of attainment by disconnecting them from the value-laden contexts of their application within particular moral, religious and cultural traditions. In doing so they are rendered publicly testable and practically useless.

However, the acquisition of useable knowledge is not the major purpose of a state controlled national curriculum. As I have argued in a previous paper (See Elliott 1988) its major purpose is to reduce the level of moral complexity individuals experience when they are caught up in the conflicting demands of different social traditions. Marquand (1987) has argued that such complexity is disfunctional to the transformation of individuals into smoothly functioning economic units. And, according to Milbank, the process of knowledge acquisition, when detached from the value-laden contexts of its utilisation in everyday life, focuses the individual's attention on the common surface appearances of things (facts) and promotes a simple set of market virtues; such as self-discipline, self reliance, honesty, and the exercise of initiative.

ASSESSMENT AND VALUES

It is often argued that the major purpose of the kind of national curriculum being developed is to enable educational achievements to be validly assessed. And this is further justified in terms of public accountability and enabling parents to make more informed choices as consumers of education. Let me offer a rather different account of the function of assessment within the framework of targets and attainment levels devised for the national curriculum. I would suggest that it is to ensure: a) that the acquisition of knowledge is disconnected from the practical contexts of its use, and b) that questions of value which arise within the practical contexts of use are framed out of the curriculum. In other words the function of the assessment framework is primarily the ideological one of eliminating complex questions of value within the curriculum by disconnecting it from real life experience. Moreover, I would suggest that this is the major point of putting parents into the role of consumers and making them the primary audience of assessments of progress. Assessment is shaped towards administering formal standardised tests or 'assessment tasks' on the basis of which valid comparisons can be made between the performances of pupils. The validity of a test or assessment task becomes a primary concern when it has to yield comparative data as a basis for parental choice. The pressure towards validity in assessment has the effect of framing curriculum content in a way which disconnects it from the experience of everyday life.

In his seminal paper on 'Testing and the Curriculum' (1978), Joseph Schwab argued that "any test which is highly valid and at the same time highly useful is not possible in the very nature of the case", because "a certifiable standard simply does not exist in most of the areas of the curriculum". Schwab is not claiming that standards of attainment cannot be specified, but rather that such specifications are always problematic and contestable. They are simply shadows of the knowledge and abilities we wish to promote.

By way of example, Schwab explores the impossibility of translating statements about the aim of arithmetic teaching in the elementary school into a certifiable standard against which arithmetical knowledge and

skill can be measured. He writes:

> The real purpose of arithmetic teaching in the elementary school is to give its students the ability to perform the appropriate operations of arithmetic upon appropriate matters properly selected by him or her from the congeries of factors (rational and affective) which are presented to his or her attention by real situations.

Schwab claims that the most valid test of a student's ability to perform an arithmetical operation, such as multiplication, is of little use to the teacher. For such a test would have to disconnect the operation from its context of use in a real situation to express an unambiguous standard of measurement. What one ends up measuring is merely a shadow of the aim of arithmetic teaching. This is because an operation like multiplication "assumes some meaning and significance when it becomes a necessary part of a larger problem, such as is represented by the 'story problem' of the arithmetic book". However, this form of representation has only a limited significance since ultimately the ability to multiply "takes on its full significance when it is competently performed by a person who detects the proper need for it in a real situation complete with plausible irrelevances, concomitant matters, and affective as well as rational distractors".

Ultimately then Schwab is claiming that there is no way of specifying a standard for measuring arithmetical ability. Assessments will depend upon judgements of significance which are intrinsically controversial. If a student is to be assessed as possessing arithmetical ability then (s)he must be able to perform an operation like multiplication in a real situation. And this will involve some deliberation about what is required in it.

This argument has enormous implications for the work of the consortia currently engaged in designing standard assessment tasks for the national curriculum, inasmuch as the criterion levels built into such tasks will always represent the 'shadows' of our educational aims and cannot provide certifiable benchmarks for assessment.

Schwab, in citing the 'affective' as well as the 'rational' factors inherent in real situation, alludes to their value dimension. For example, judgements about the appropriateness of an arithmetic operation might well be linked to giving another person help and support, or to exploiting another. In other words 'insiders' judgements about the appropriateness of a mathematical operation in real situations, and which enter into 'outsiders' assessments of their ability are not simply technical matters. They may have a moral, religious or even political dimension. And this implies that mathematical competence in real life is not simply a technical competence. When one acknowledges that the acquisition of knowledge is not separable as a process from its utilisation one also acknowledges that one cannot divorce knowledge acquisition from value- issues: something 'the new vocationalism' failed to come to terms with.

I believe that such an acknowledgement is implicit in Schwab's reference to 'judiciousness' as an aspect of arithmetical ability. Assessments of such an ability involve, according to Schwab, questions like: is this knowledge useful to the student in this situation? What constitutes a judicious use of this knowledge in this situation? What sorts of abilities does 'judiciousness' consist of? Answers to these questions are matters of judgment rather than measurement and inevitably contestable and controversial. They cannot be standardised through a test. This is why Schwab argues that a test which measures arithmetic operations "with all the trappings of validity coefficients and standardised achievement levels" is sedative instead of stimulative to the teachers' search for better means of instruction and more adequate conceptions of his aims". The more 'face validity' a test possesses the more it will abstract the operation from the practical contexts of its use. It will pre-empt all manner of questions which could be asked about whether the operation signifies the ability cited in the curricular aim. A preferable alternative would be the design of assessment tasks which are multi- perspective inasmuch as they embody a variety of interpretations of desirable knowledge outcomes. Such 'tests' would be useful in helping teachers to reflect in depth about their educational aims.

KNOWLEDGE, UNDERSTANDING AND VALUES

The Times Educational Supplement recently featured (17 February 1989) an interesting response by Haylock to the NCC consultation report on mathematics targets within the National Curriculum. Haylock focuses particularly on targets concerned with using and applying mathematics. It is interesting that both the science and mathematics proposals tend to analytically separate knowledge and understanding from the skills involved in knowledge acquisition and application. Implicit in this classification is the assumption that knowledge and understanding can be assessed independently of the abilities exercised in its acquisition and use. Immediately, we get a classification of curriculum content which implicitly defines knowledge and understanding as a grasp of surface facts.

However, it is to the credit of the professionals on the working groups for science and maths that they have fought, against political opposition, to balance targets devoted to 'knowledge and understanding' against a number of targets which specify abilities involved in the generation and use of knowledge. According to Haylock, the maths group specified a cluster of

targets which outlined abilities to use and apply mathematical knowledge but 'wisely' did not attempt to define, in accordance with the TGAT proposals, attainment levels for each ability. In the event, Haylock argues, the NCC caved in to political pressure from the Secretary of State and forced the group to specify attainment levels. These are now enshrined in the draft orders and will shortly have the force of law behind them. Haylock clearly, and rightly, argues that the specification of attainment levels for competence at using and applying mathematical knowledge makes little educational sense. And the examples he provides illustrate just how ludicrous the performance statements are. Most of the statements refer to competences which children could display at any age. But, as he points out, there is never a point at which one can say that children or even adults have attained them. This is because they are heavily context specific. Individuals at any age can display such competencies in some contexts but not in others. Haylock writes:

> The following level 10 statement of attainment demonstrates this most effectively: 'Design, plan and carry through a mathematical task to a successful conclusion; present alternative solutions and justify selected route'. If I ask myself whether I can do this, I must answer 'sometimes'. And so can the children in the reception class, sometimes.

I would suggest that, although the specification of abilities to use and apply knowledge is terms of attainment levels is educational nonsense, it serves to ensure that the assessment framework of attainment levels remains intact, and this implies giving a primary emphasis to the 'valid' assessment of surface knowledge. Haylock claims:

> Competencies in the realms of knowledge, skills and understanding are amenable to some extent to description in terms of attainment. So it is perfectly reasonable to ask a teacher to determine, for example, whether a pupil can "express a positive integer as a product of primes.

I would agree, but with the reservation that the knowledge referred to only constitutes surface understanding if it can only be produced and utilised in a restricted range of contexts which bear little resemblance to real life situations.

We need to be clear about the difference between two senses of 'knowledge and understanding'. In one sense 'knowledge' is used to refer to the belief that what a true proposition asserts is true. It therefore entails 'understanding' what the proposition asserts: its meaning. Propositional knowledge therefore implies 'understanding' in the sense of comprehending the meaning of propositions.

In another more profound sense, knowledge is used to refer to both propositional knowledge and knowing how to use and apply it to real life situations. This also implies a different sense of 'understanding' as competence in utilising and applying knowledge. Such understanding does not simply involve comprehending the meaning of propositions. It involves exercising certain powers and capacities to use, apply, and test them. 'Understanding' in this sense implies 'knowing in action'. It is an active process. We assess this kind of understanding by identifying the powers and capacities (abilities) which are activated and developed in this process. In assessing 'understanding' in its deeper sense we necessarily have to focus on the process of learning. Attainment targets which demarcate 'the use and application of knowledge' are referring to this second sense of 'understanding'.

It is ridiculous to carve the powers and capacities involved in the process of understanding up into attainment levels because whether they are manifested or not is heavily dependent on the kinds of learning tasks pupils are set. A reception class child, as Haylock argues, may well display certain powers of understanding in relation to some tasks to a very high degree without being able to display them in relation to other tasks. It follows from this that what really needs to be mapped out in terms of sequenced levels are tasks or learning experiences related to real problems of everyday living, and not abilities to use and apply knowledge. These should serve as criteria for assessing the development of the powers of understanding in relation to every learning task.

I now want to make a further point. If learning tasks constitute 'understanding' tasks, in the deeper sense of the term, then pupils must be able to select for themselves what propositional knowledge may be usefully applied to resolving the practical problem posed by the task. And as I have argued this act of selection is inevitably conditioned or biased by the pupils' values. Therefore the same 'understanding' tasks may produce legitimately divergent 'knowledge' outcomes while activating and developing very similar powers of understanding.

With respect to 'understanding tasks', in contrast to 'recall' or 'comprehension' tasks, one cannot predefine in advance of the learning process exactly what propositional knowledge pupils ought to use and apply. Of course, teachers should anticipate a range of alternative 'knowledge' outcomes in order to be in a position to give pupils access to a range of ideas they can select from. In my view priority in curriculum planning should be given to mapping sequences of 'understanding tasks' and establishing process criteria for assessing practical competence in using and applying knowledge. Within this 'process model', brilliantly articulated by Lawrence Stenhouse (1975) a decade and a half ago, there is room for a form of

profiling assessment in which the development of a pupil's powers of understanding are described over time in relation to a range and variety of learning tasks. Moreover, such powers are likely to be cross-curricular which considerably reduces the number of criteria employed in the assessment system. Within this form of assessment the development of standard assessment tasks, standardised against pre- specified knowledge outcomes or 'criterion referenced', is quite inappropriate. The role of teachers in assessment would be to observe and record in detail the normal, everyday task performance of pupils in order to make reasonable inferences about the development of their powers of understanding. Such references would be cross-checked against the judgements of their colleagues and the self-assessments of the pupils themselves.

This indeed is the kind of assessment process recommended by the DES report on 'Profiling and Records of Achievement' (1989). Such recommendations are highly inconsistent with the fact that the NCC, under pressure from the Secretary of State, appears to be nonsensically carving up 'practical application' targets into attainment levels, and contemplating the production of standardised tasks to assess attainment. The development of capacities for understanding are not attainments; 'things' pupils possess. They are qualities of being manifested in action and in the process of continuous development throughout life. Their development is organic and context-bound and it cannot be marked out in advance by predetermined and quantifiable benchmarks.

Having said all this I would not rule out establishing assessments of the content of pupils' knowledge. Such assessments would need to be retrospective to task performance and context dependent. The curriculum could provide guidance in selecting potentially useful knowledge by specifying a range of 'knowledge' pupils could explore when undertaking particular learning tasks.

There is no reason in theory why the present curriculum and assessment framework couldn't be changed along the lines I have indicated. It would consist of the following components:

1) A sequenced map of 'understanding' tasks which require pupils to utilise knowledge in analysing and resolving problems of everyday living.

   Such tasks will tend to be multi-disciplinary in their knowledge requirements.

2) A set of process criteria for assessing the development of understanding in relation to learning tasks.

3) A classification of knowledge content with respect to the kinds of knowledge pupils will need to select from in performing different levels of 'understanding' tasks. These will probably be best classified according to subject categories.

For reasons outlined earlier in this paper I will predict that the existing framework will continue to evolve in a manner which gives a primary emphasis to the learning and assessment of surface knowledge, and thereby run the risk of distorting the educational process of developing pupils' powers of understanding in a manner which disconnects the acquisition of knowledge from reflection about the values which should be realised in everyday life. In this way the framework operates to constrain teachers across the national curriculum from initiating pupils into a reflective discourse about the human values which ought to govern our quest for, and use of, knowledge.

The fate of the science task group is a clear indication of the ideological function of the present framework. The group began by delineating learning tasks or experiences for each phase of education rather than attainment targets. From the tasks for each phase they identified a range of possible knowledge outcomes, 'process skills', and 'value issues'. These formed the basis of four clusters of targets, namely: knowledge and understanding, exploration and investigation, communication, and science in action. In their proposals to the Secretary of State they listed 'statements of attainment' for each cluster alongside the relevant learning tasks. His response was to suggest that everything should be subsumed under 'Knowledge and Understanding' because skills of 'exploration and investigation' should "go hand in hand with developing their knowledge and understanding of scientific facts and theories" and the targets in the other two clusters were not defined precisely enough to serve as "a clear basis for assessment".

Pedagogically, it may be reasonable to argue that the development of investigatory abilities should go hand in hand with the acquisition of knowledge, but what the science group were clearly doing was not so much defining curricula aims as assessment standards and criteria, even if it didn't recognise the distinction. The Secretary of State evidently doesn't, and nor it seems does the NCC. Any meaningful statements of aims which integrate 'Knowledge and Understanding' with 'skills of investigation' would shift the meaning of the former terms to their deeper senses and thereby also necessitate the integration of the other two dimensions - 'communication' and 'science in action' - within statements of aims. Such holistic conceptions of learning would however lack the very precision Mr. Baker wants targets to possess in order to deliver the kind of assessment he wants, and which he complained the 'communication' and 'science in action' statements lacked. What he clearly wanted was to drastically reduce the number of targets to largely cover 'knowledge and

understanding only'. In the event 'communication' and 'science in action' targets have largely disappeared from the final report of the NCC, with the latter persuading the Secretary of State to retain 'skills of exploration and investigation', albeit atomised into spurious levels of attainment.

The overall evolution of the framework for science is clear. In the final report many of those elements of the original framework which highlighted the importance of assessing abilities to use and apply scientific inquiry and knowledge in relation to the value-laden contexts of everyday life have disappeared. If they were explicitly incorporated into a framework of abilities identified as generic to the cross-curricular development of understanding, I would be more optimistic. But such a framework has yet to emerge in anything other than an ad hoc manner.

The assessment framework being imposed is preempting an opportunity for assessment experts to develop tests of knowledge in the context of its application to real problems of living which could have genuinely educational potential in helping teachers to reflectively improve their teaching in schools. Such tests would fall into Schwab's category of 'useful' rather than 'conventionally valid' assessments because they would supplement teachers' own assessments by having a formative function. A range of different assessment tasks would represent a variety of views on what constituted useful knowledge in a particular context of application. The results of such multiple test situations could then be used by teachers as a basis for reflecting about the ways in which they transmit knowledge to pupils. As Schwab argues:

> Far more desirable (than 'valid' tests [my brackets]) would be tests and usages of statistical data which kept the teacher alert to the incomplete and merely representational character of the moment-to-moment content of a curriculum, and which aided and stimulated his effort to put incomplete parts into relation with one another, to make symbols more vividly representative, and to search out and invent means for replacing shadows by the things themselves.

My fear about our national curriculum and assessment framework is that it will confine the process of teaching and learning to the shadows of educational excellence rather than enable it to manifest the powers of understanding which constitute such excellence. This need not happen if schools and LEAs seize the initiative and generate broader and more valid curricular frameworks which serve to counterbalance a national framework that distorts the nature of education for the sake of producing 'conventionally valid' assessments of surface knowledge.

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Checking the focus: an overview of the conference

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Unfortunately, Jean Rudduck was not able to attend the conference and perform the function of reviewing and responding to the papers. There is no doubt that the final conference report would have been much better if we had been able to share her experience and her sharp perceptions. As it was, some conspiring by colleagues in the Liverpool Evaluation and Assessment Unit resulted in the task being given to me as I arrived at the conference. The result was that from late afternoon on Friday to lunchtime on Sunday, I was forced into intensive and increasingly neurotic listening. What follows is very much my own perception, from my own camera angle, of the issues emerging from the conference.

The conference sub-title, 'Moving into Focus' did, I believe, prove to be apt. The key contributors were chosen because they were thought to be close to the action. Peter Watkins and Hilary Steadman are close to the thinking of bodies such as the NCC and SEAC, which have been given the statutory function of supervising the implementation of the 1988 legislation as it applies to the National Curriculum; Paul Black and Wynne Harlen are involved in the shaping of the future pattern of national assessment; Keith Evans and John Wycherley (Principal Advisor, Sefton LEA; group rapporteur to Keith Evans) have the task of operationalising policy at the LEA level. We invited John Elliott to take a philosophical, socially critical view of the National Curriculum and to be 'playful' with the ideas and the taken-for-granteds of the whole process. The participants, with few exceptions, were members of the academic and teacher education communities, who were to some degree removed from the immediate impact at school and classroom level, of the National Curriculum. Taking the theme of the conference title, all who attended the week-end could be compared to photographers contemplating entry to a photographic competition - they knew the basic ground rules (the national curriculum legislation) and the deadlines, perhaps even down to the limitation on the speed of the film (the implementation programme) but they were less sure of the criteria for assessment and had to be prepared to anticipate what these might be, based on their previous experience. As in most photographic competitions, the choice of lens, length of exposure and camera angle was left to the individual.

I do not wish to pursue this analogy too far because it soon breaks down but I will stick with the notion of focus. The quality of focus can be judged by the ways in which the foreground of any picture relates to its background. The conference, in relation to the National Curriculum, moved frequently during the week-end from foreground, immediate, short-term issues to background and longer term issues. Peter Watkins, from his position within the National Curriculum Council, reminded us of the difficulties being encountered in the setting up of a new central bureaucracy, which was having difficulties in coping with the move to the north from London, in establishing a new staff to support its new work while at the same time being expected to meet the deadlines of a Secretary of State who appears to be in a hurry. Peter Watkins himself, is of course, an example of continuity in central curriculum bodies, having served in turn, the Schools Curriculum Development Committee and now the NCC. Some members of the conference must constantly experience a feeling of **deja-vu** as this process unfolds. These difficulties in the early days of the NCC have inevitably led to an uneven and unequal distribution of information from the centre. Members of the conference, particularly from teacher education and from LEAs expressed considerable concern over not being able to obtain copies of key NCC documents and in not knowing which documents were being issued, for what purposes and to whom. Many networks still exist, built up since 1964 through the Schools Council and subsequent organisations, but the tension between using the continuity of this line of communication and the need to expunge any associations with past efforts at national curricular review and development, seemed to be showing.

Perhaps the feeling that distance was being built up between the academic and professional communities and the NCC was at its strongest when Peter Watkins mentioned briefly the working parties that

had been set up to consider issues such as personal and social education, cross-curricularity and the 14 to 16 curriculum. These committees seem to have taken on an aura similar to that of Cabinet Committees, of which there are around 180, but no one in government talks about them because they are not supposed to exist. At the moment, openness does not appear to be the strong suit of the NCC. The result is often professional suspicion, a lack of mutual trust and a feeling of exclusiveness and exclusion emanating from the new national body. The new professional staff of the NCC will need to work hard to counteract this image.

Only when ideas, no matter how embryonic, are shared can one begin to pick up a view of their worth and acceptability. The ideas put forward by Peter Watkins on the search for a curricular rationale and a framework for approaching cross-curicular themes, seemed to be premature and not to have been given rigorous academic treatment. The reactions of the conference to these ideas were negative (not in the photographic sense!), but at least they were being shared. In contrast, his views on the future of the 14 to 16 curriculum, which he saw as being best approached, organisationally, through a modular structure, were well received. In this part of his paper, Peter did reveal part of the process being employed **within** the NCC working group structure for picking up issues, ideas and criticisms. In response to a question he did appear to take on board the suggestion that there was a need to incorporate ideas and suggestions from a wider source into their thinking to avoid relying entirely on official consultation processes.

Hilary Steadman is a member of SEAC but with no executive function. Using her own individual camera angles, she gave us some clear perceptions of issues arising as the National Curriculum is being implemented. She began by reminding us of the scale of the task facing class teachers as they took on their assessment roles. She moved on to taking up the issue of national assessment and its relationship with existing forms of accreditation. There is a need for the consolidation of GCSE, BTEC and other initiatives. If this is to happen, it will involve NCC and SEAC communicating with each other much more effectively than they appear to be in the early stages of the move towards a National Curriculum. Hilary Steadman reminded the conference of an important issue: the Education Reform Act, 1988, provides a legal entitlement to a curriculum for pupils 5 to 16 and no such entitlement exists post 16. This legal discontinuity runs counter to recent initiatives (TVEI) which encourage cohesive treatment of curricular provision and practice from 14 to 19. The Further Education Unit (FEU, 1989) has recently pronounced on this issue but must remain concerned that the work of the Unit is, in the main, being ignored by those chiefly involved with mainstream pre-16 education and this would, in my view, include the NCC.

The conference was privileged to be brought up-to-date on the state of policy and practice in national assessment by hearing the views of Paul Black and Wynne Harlen. Paul Black restated the view from the TGAT Report that we were implementing a curriculum in which the promotion of children's learning was a principal aim and that "assessment lies at the heart of this process". (DES, TGAT Report, 1987, para.3) This section of the report is often quoted in pejorative terms and by people who cannot have read and understood the full report, as advocating an assessment-led curriculum. Paul Black went on to take a longer term view of the assessment system, reminding us that we were just at the beginning of a long road of development and that we were hardly likely to get things right first time but would have many opportunities to change approaches as we progressed down the road. The work linking levels in one subject with those in another remained as a large challenge. He was prepared to take the optimistic definition of "assess" as laid down in Section 25(I) of the Education Act, 1988, as including "examine and test" which allows a variety of methods to be used as part of the assessment arrangements and chose to ignore the cautionary note to be found in Annex D of Circular 5/89 which warns,

> "There is a considerable amount of work to be done on the detail and cost-effective arrangements needed to support such a system [of assessment]. The suggestions made by the Task Group on Assessment and Testing in its third supplementary report on the moderation system appear complicated and costly; ... the support arrangements adopted must be sufficiently simple to enable good progress to be made in introducing the national assessment system." (DES,1989).

The use in an official document of words such as 'costly', 'complex' and 'simple' suggests that imaginative systems involving teachers and group moderation processes may already be non-starters.

To me, a key issue in Paul Black's paper is his exploration of the notion of progression. The ten levels represent an expert defined view of progression through an attainment target or set of attainment targets. This emphasis on the assessment of **performance** or **attainment** and not on ability, was made clear as was the feasibility of relating attainments to particular chronological ages. Most of the examples used to illustrate these ideas come from maths or science where there is a strong assumption of the linearity of progression through content and/or some clear empirical evidence based on studies of children's developing thinking and understanding. The case may not be as easy to make in other subjects. For example, the attainment targets for

English appear to assume a spiralling of the important ideas contained in the main profile components. The differences between levels appear to be less clear and progression from one level to another is often defined in simplistic terms:

- AT1, Level 3: English: "listen with *an increased span of concentration* ..."
- AT4, Level 3: English: "show *a growing awareness* of word families ..."

What is an increased span, what is a growing awareness?

As one moves into areas of the curriculum such as geography or history where the progression through content is less clear and there is less empirical evidence of the growth of children's thinking and understanding, issues of this kind will multiply.

Wynne Harlen and her associates are trying to grasp some of these nettles through their 'grassroots' approach to developing Standard Assessment Tasks for seven year olds. In sharing some of the problems with members of the conference, Wynne made it clear that their SATs had to work in 'natural' classroom settings. It was also good to hear her reaffirm that a major aim in teaching science to young children was the development of scientific **attitudes**, thus correcting a misreading of the TGAT Report. Many teachers have apparently interpreted TGAT's view that attitudes should not be assessed in the national programme as meaning that the development of attitudes no longer mattered in teaching.

On the surface it may not be obvious, but in my view, the contributions of John Elliott and Keith Evans have a great deal in common. In his stimulating after dinner paper, John brought us back to a consideration of some philosophy of the curriculum. He managed to couch in relatively positive terms, his view that a clearly thought out rationale was hard to find in the National Curriculum. Using a perspective which stretches back through a generation of involvement in curriculum projects, he reminded us that the objectives model which is the basis of many of the assumptions behind the National Curriculum plan, is not an appropriate model if we are interested in the development of understanding. In similar vein, Keith Evans appealed to the teaching profession to 'hold steadfast' to what they have and to remain thinking professionals against the advance of mechanistic curriculum management.

In retrospect, I found the conference positive in overall tone, with professionals from a wide range of backgrounds eager to share their ideas, concerns and hopes. Quite naturally, to return for the last time to my photography fetish, the picture of the National Curriculum that emerged, seemed to have a blurring around the edges of the figures in the foreground, represented by an apprehension of not being able to keep up with developments and often because of not possessing the latest documentation; the background, however, appeared to provide the possibility of improvement, and anyway, the distance blurred the detail and lent enchantment to the view.

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LEAU

The Liverpool Evaluation and Assessment Unit was established in the Summer term of 1988. The Unit offers consultancy and other services in evaluation, appraisal and assessment to LEA's, training agencies, schools, colleges and other professional organisations. It runs courses and conferences on matters relating to evaluation, appraisal and assessment; disseminates and publishes information and new material; promotes and coordinates research and development projects related to evaluation, appraisal, assessment and testing.

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